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Hahn et al.

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(54) **RAZOR WITH PIVOTING HEAD**
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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 501 days.

B26B 21/22; B26B 21/225; B26B 21/227; B26B 21/4012; B26B 21/4037; B26B 21/30; B26B 21/32; B26B 21/521
USPC 30/47
See application file for complete search history.

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Related U.S. Application Data

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(51) **Int. Cl.**
B26B 21/22 (2006.01)
B26B 21/18 (2006.01)
B26B 21/32 (2006.01)
B26B 21/52 (2006.01)
B26B 21/30 (2006.01)
B26B 21/40 (2006.01)

(52) **U.S. Cl.**
CPC **B26B 21/227** (2013.01); **B26B 21/18** (2013.01); **B26B 21/225** (2013.01); **B26B 21/30** (2013.01); **B26B 21/32** (2013.01); **B26B 21/4012** (2013.01); **B26B 21/521** (2013.01)

(58) **Field of Classification Search**
CPC B26B 21/00; B26B 21/08; B26B 21/14; B26B 21/04; B26B 21/16; B26B 21/18;

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Primary Examiner — Jason Daniel Prone

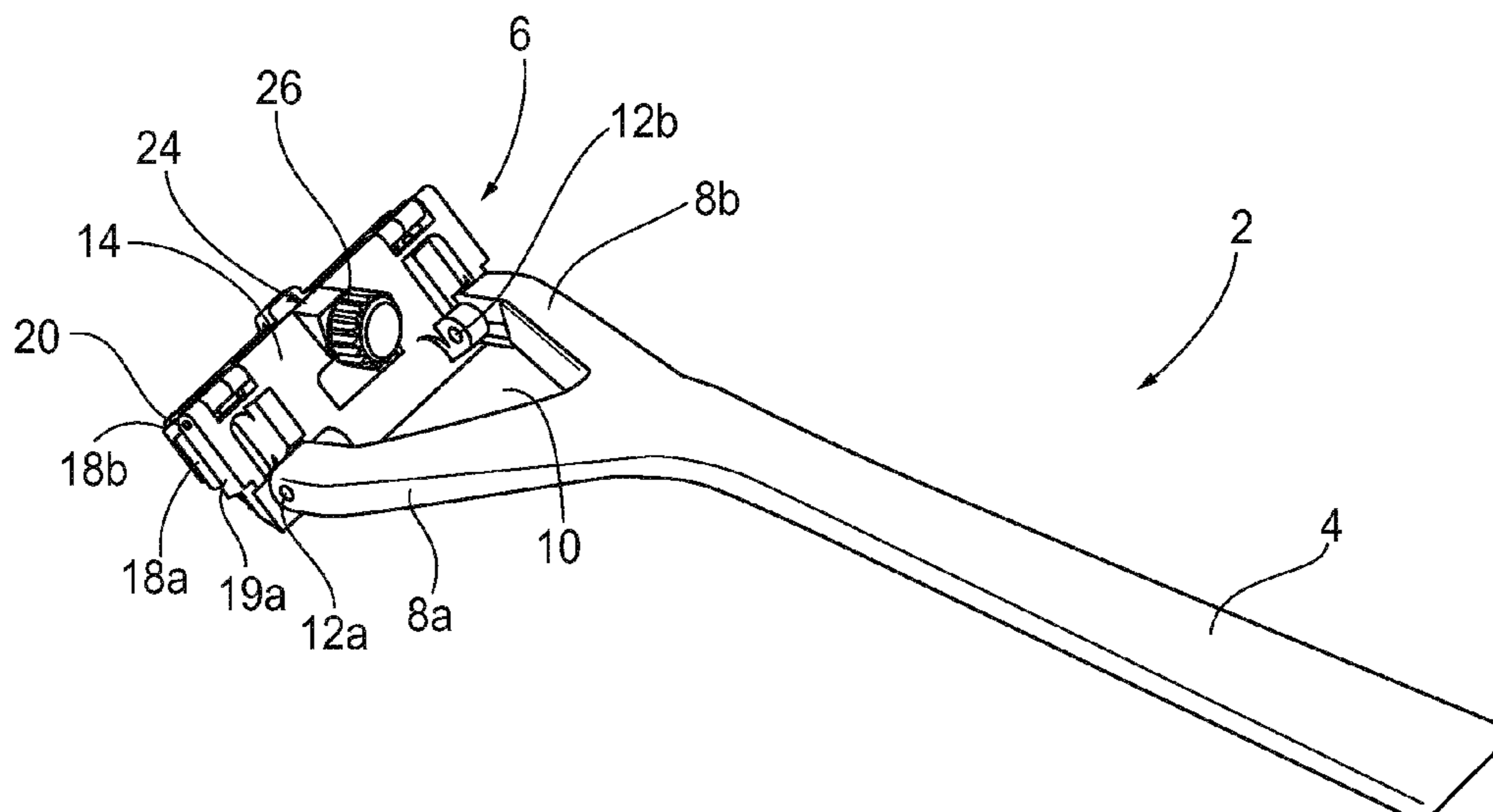
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(57) **ABSTRACT**

A shaving razor may include a handle, a head pivotally attached to the handle, the head may include a frame and a cover pivotally attached to the frame, and at least one separation member provided between the frame and the cover of the head. The at least one separation member may be movable relative to the frame and the cover of the head. A shaving razor may include a handle and a head pivotally attached to the handle. The head may be configured to receive at least two independently replaceable razor blades.

12 Claims, 25 Drawing Sheets



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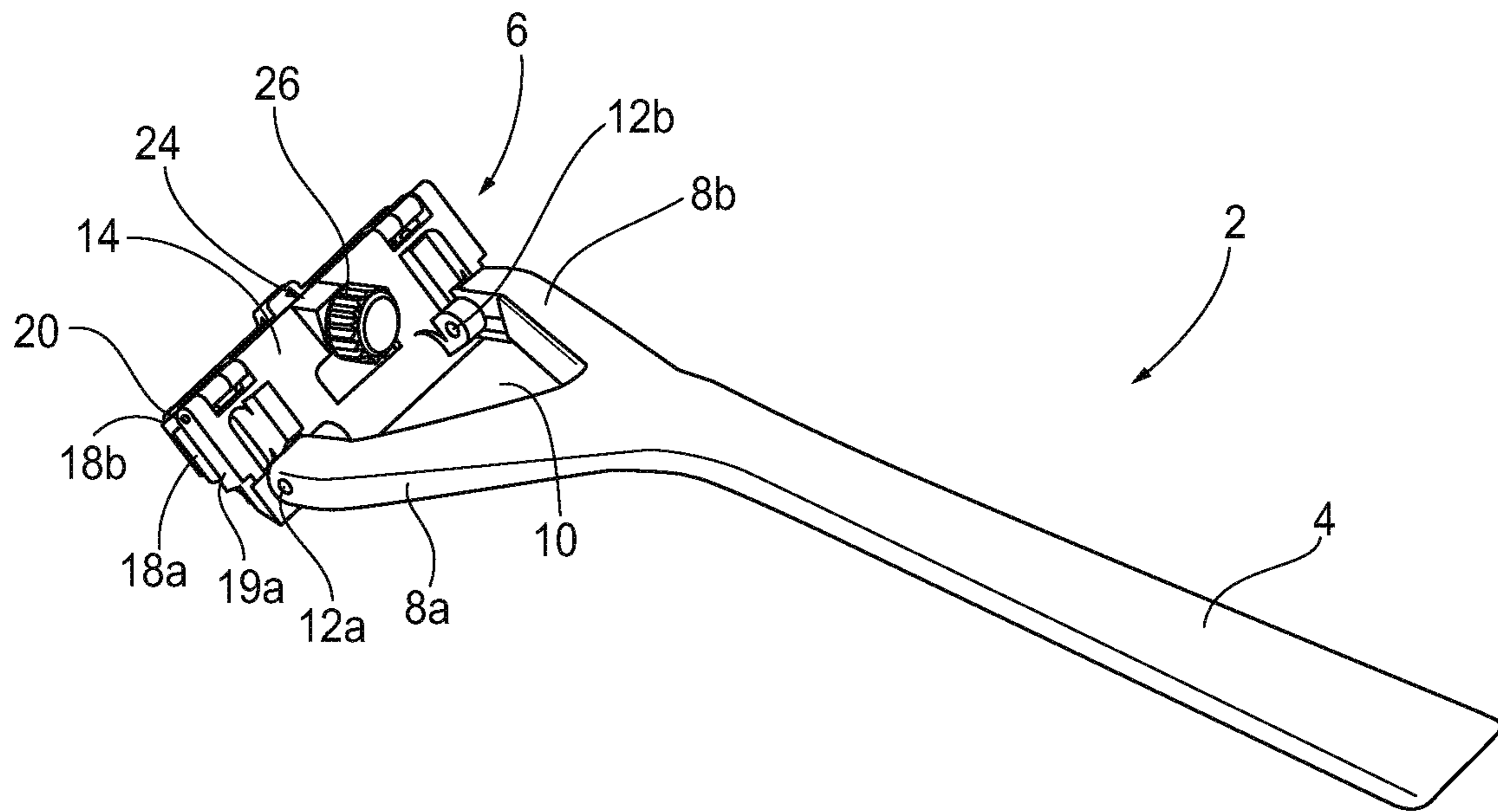


FIG. 1

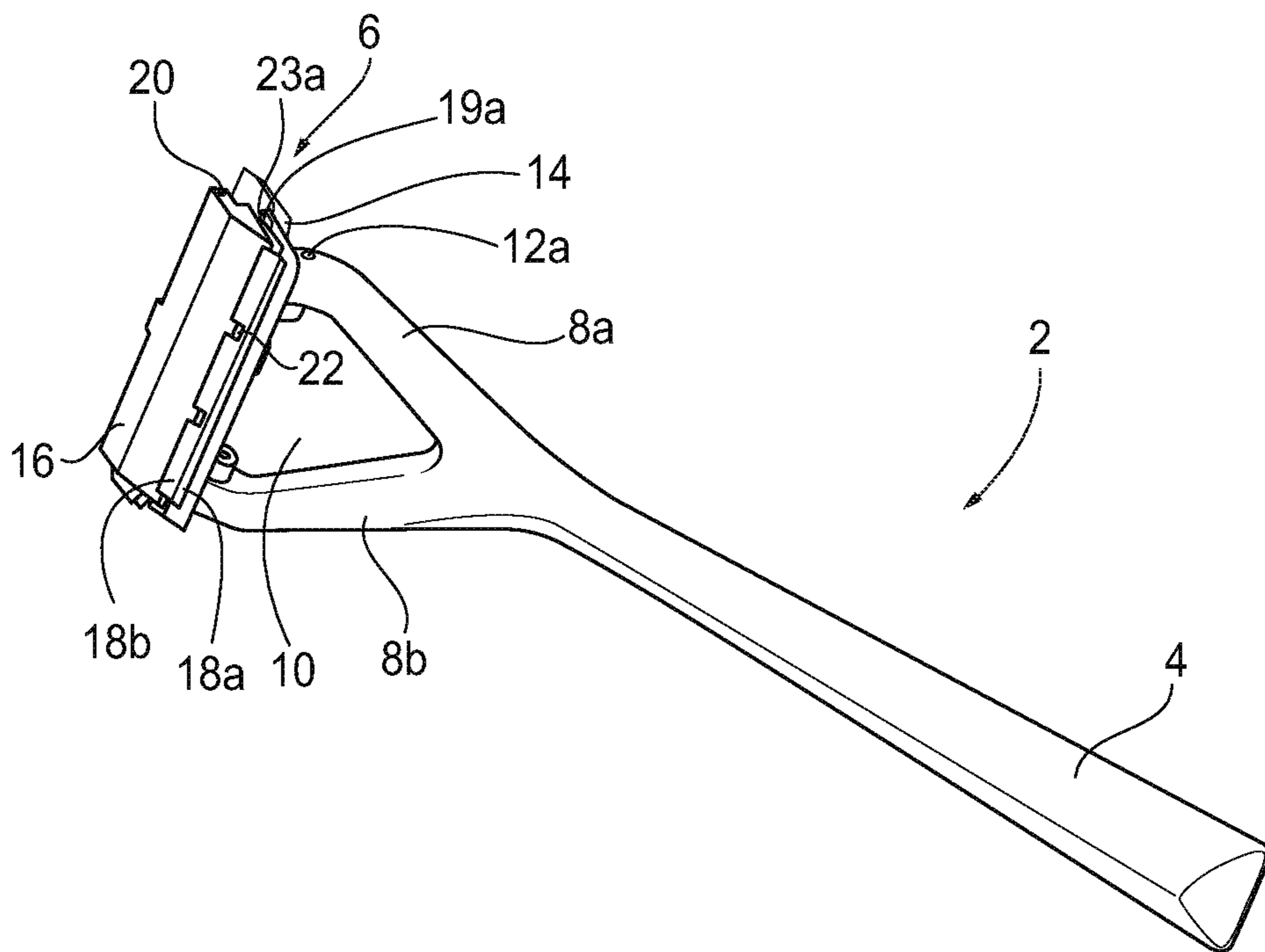


FIG. 2

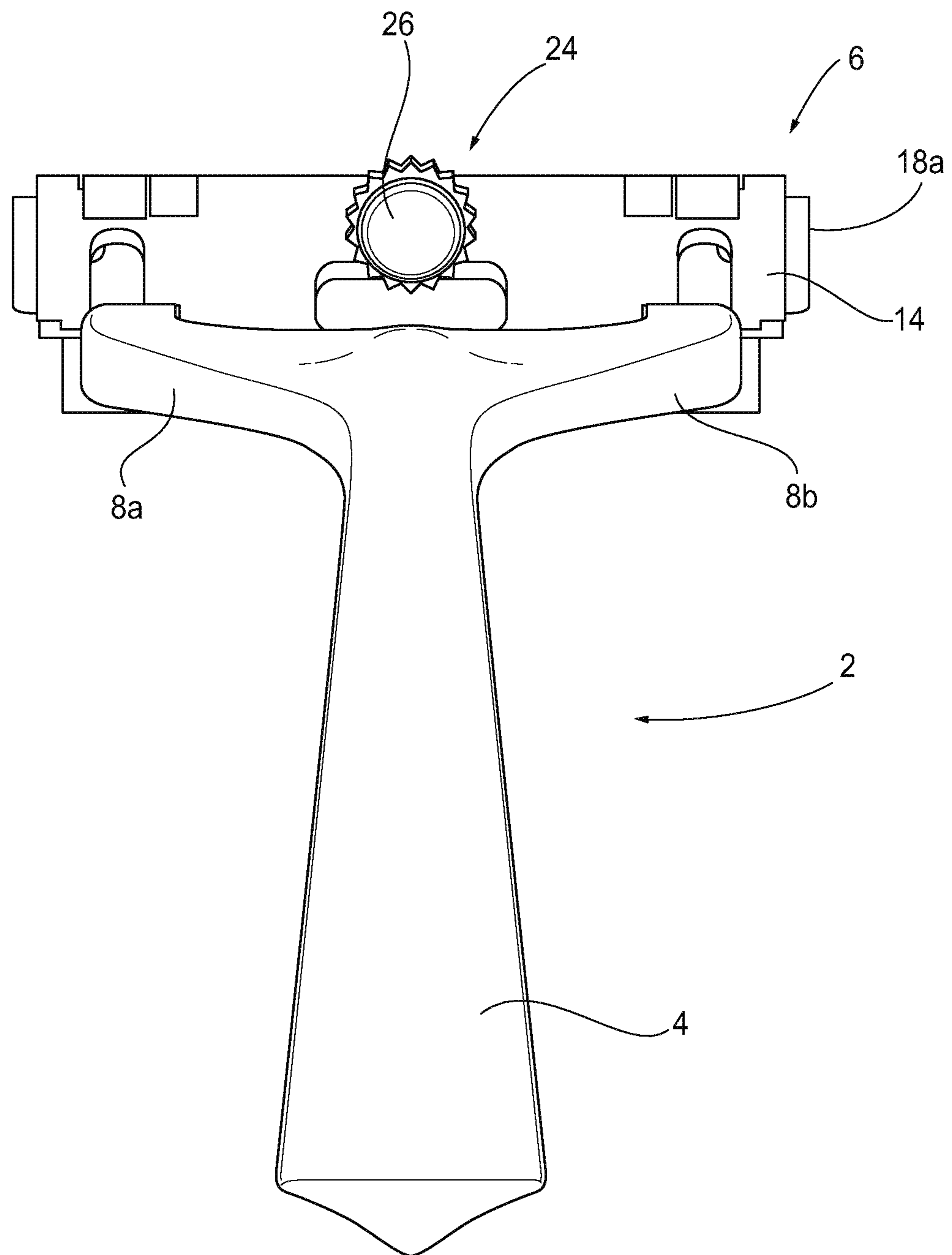


FIG. 3

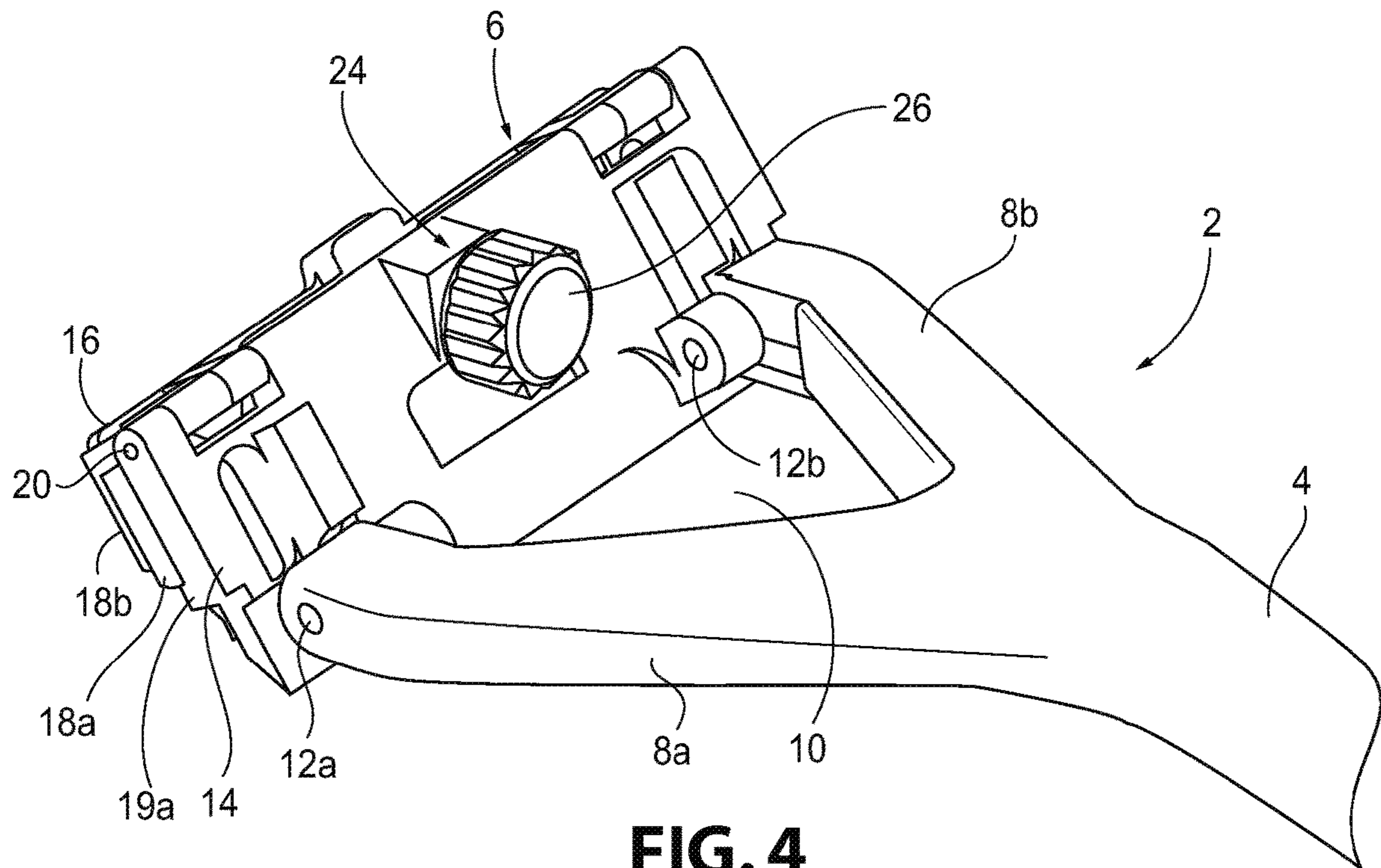


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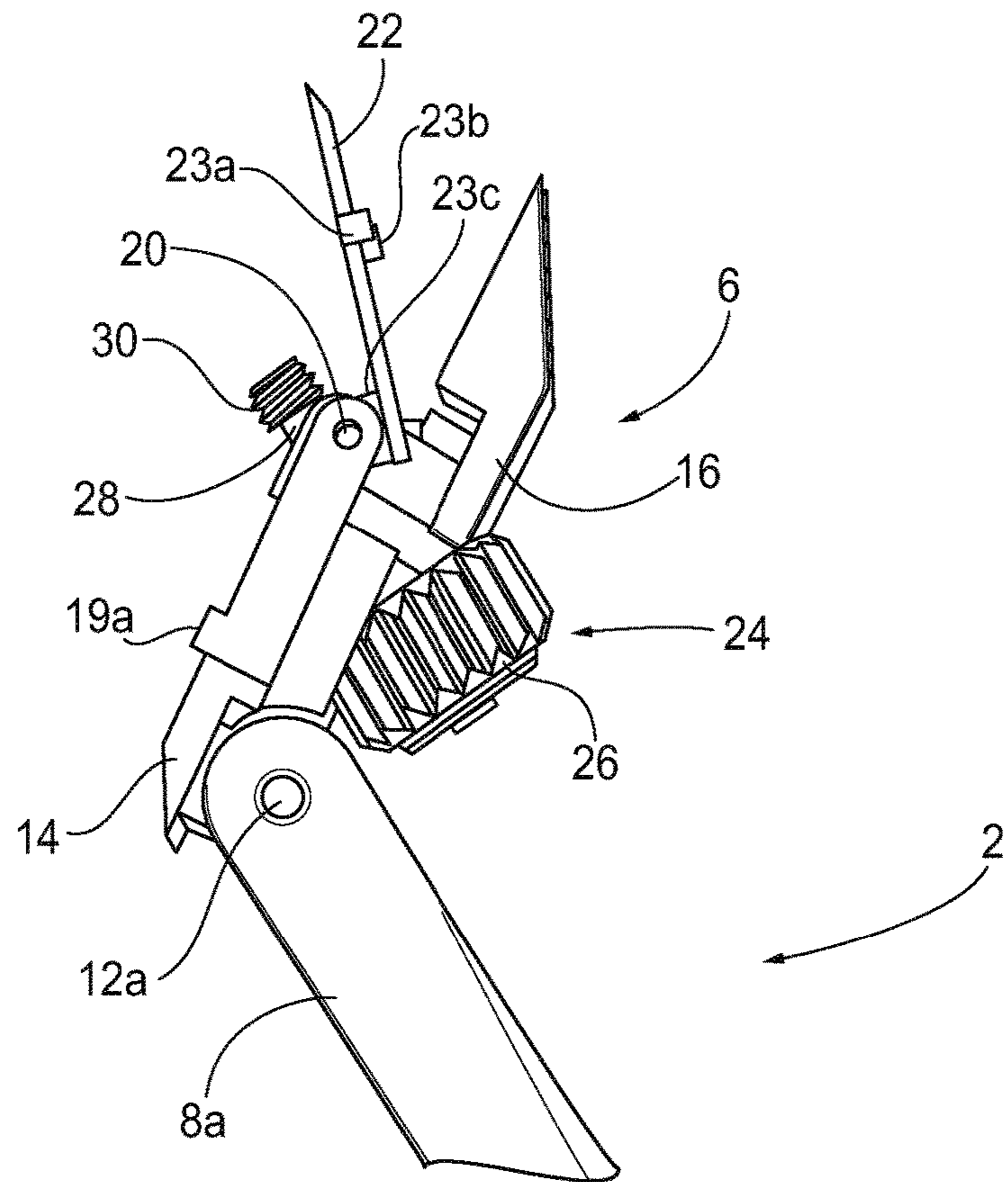


FIG. 5

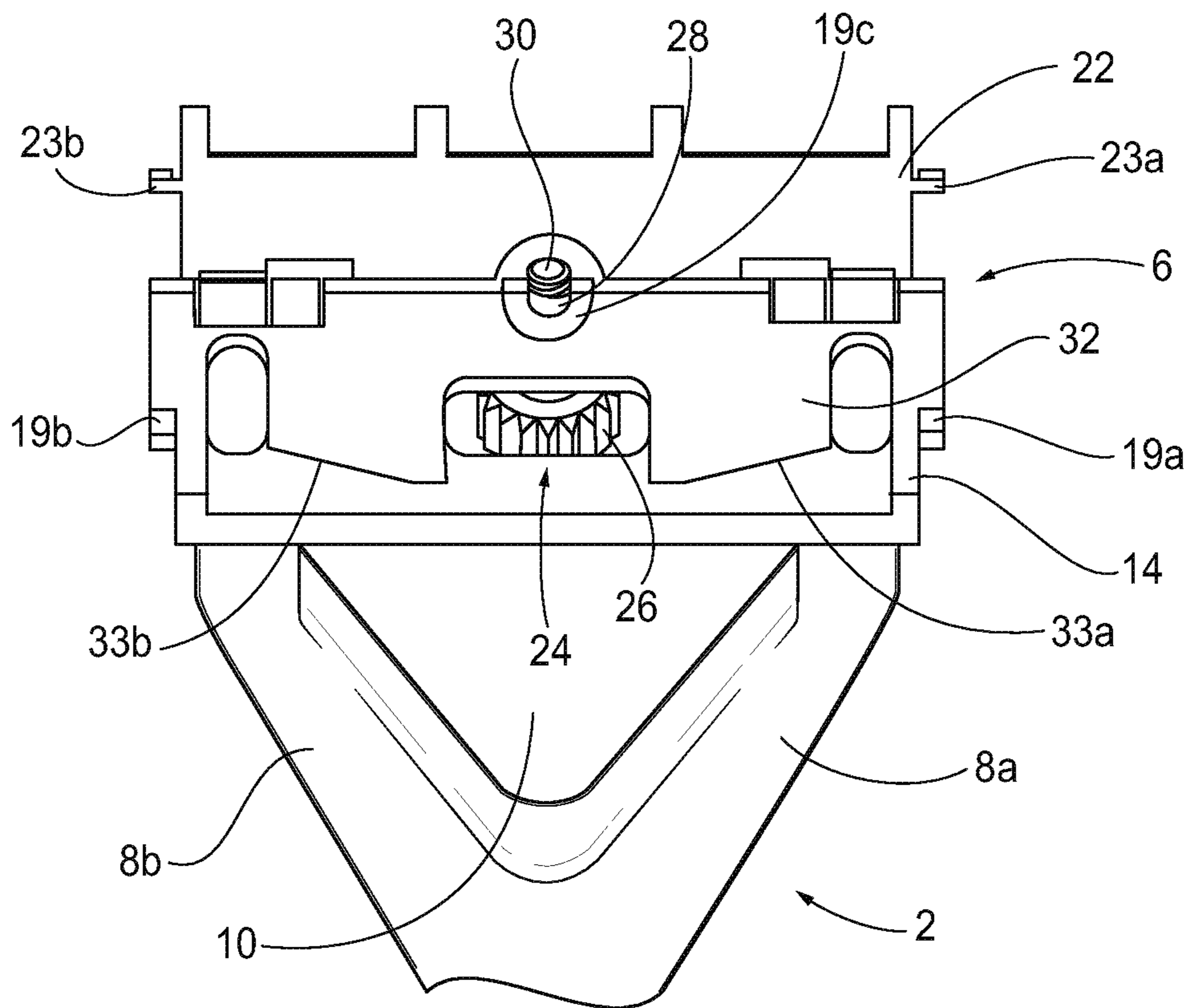


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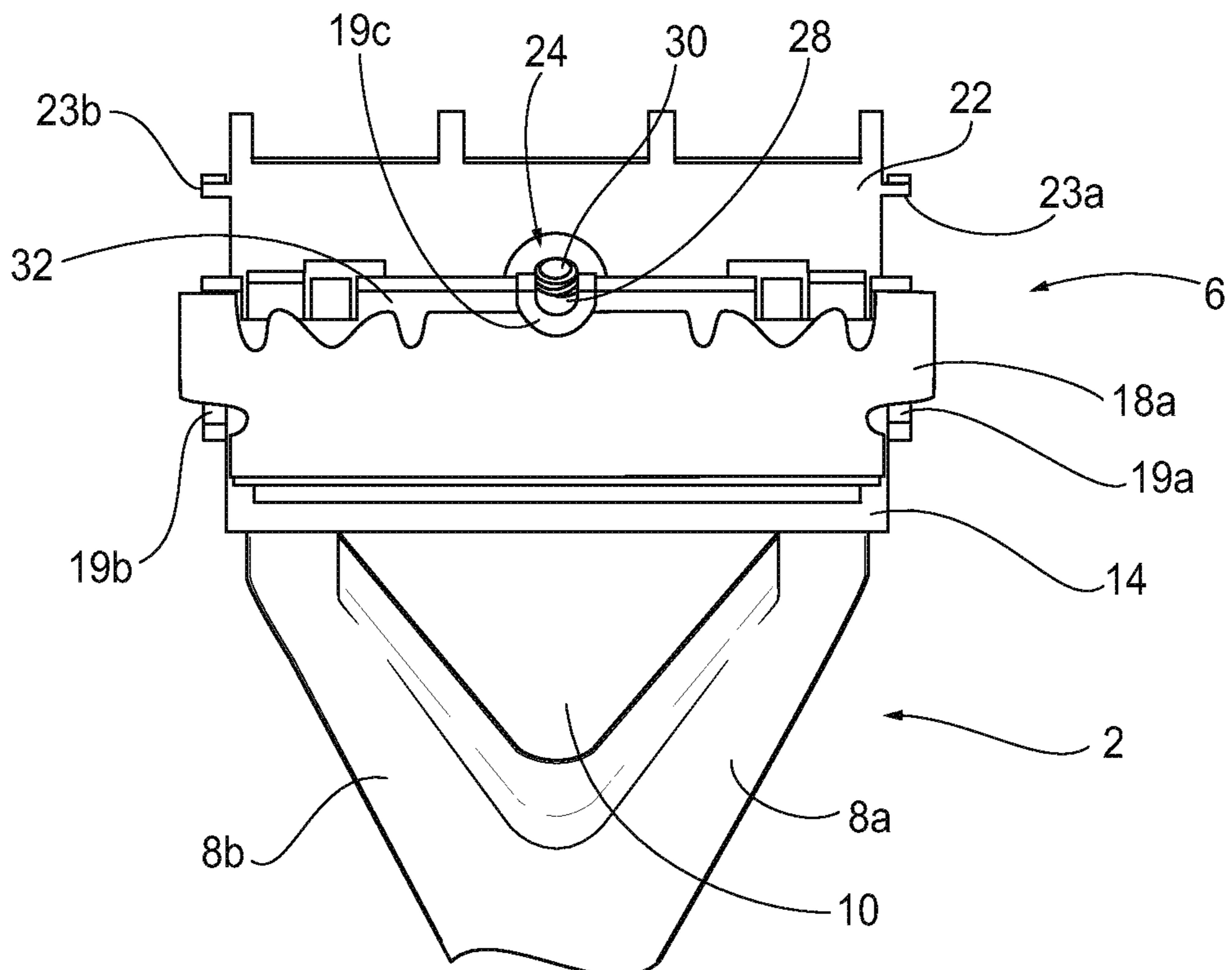


FIG. 7

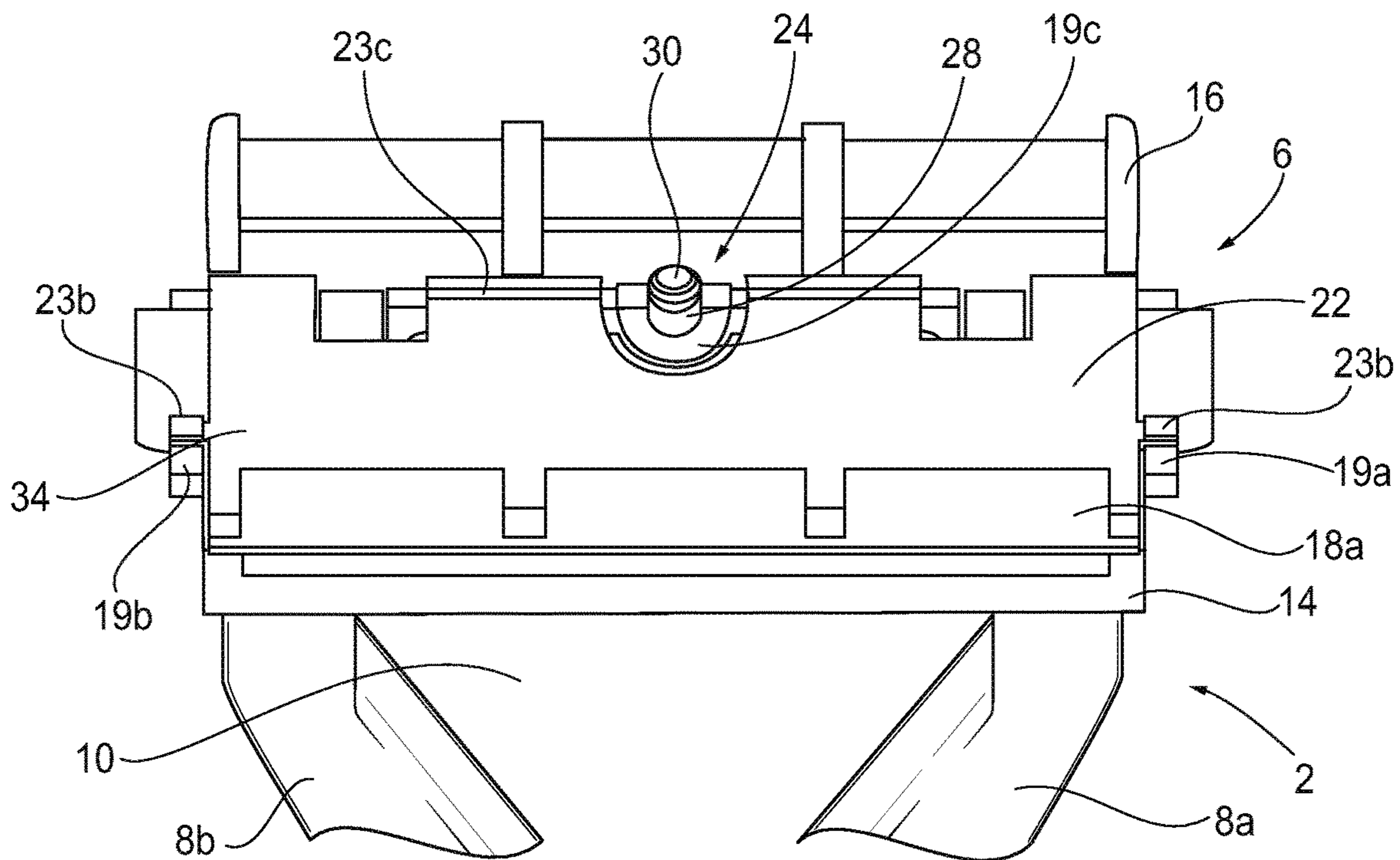


FIG. 8

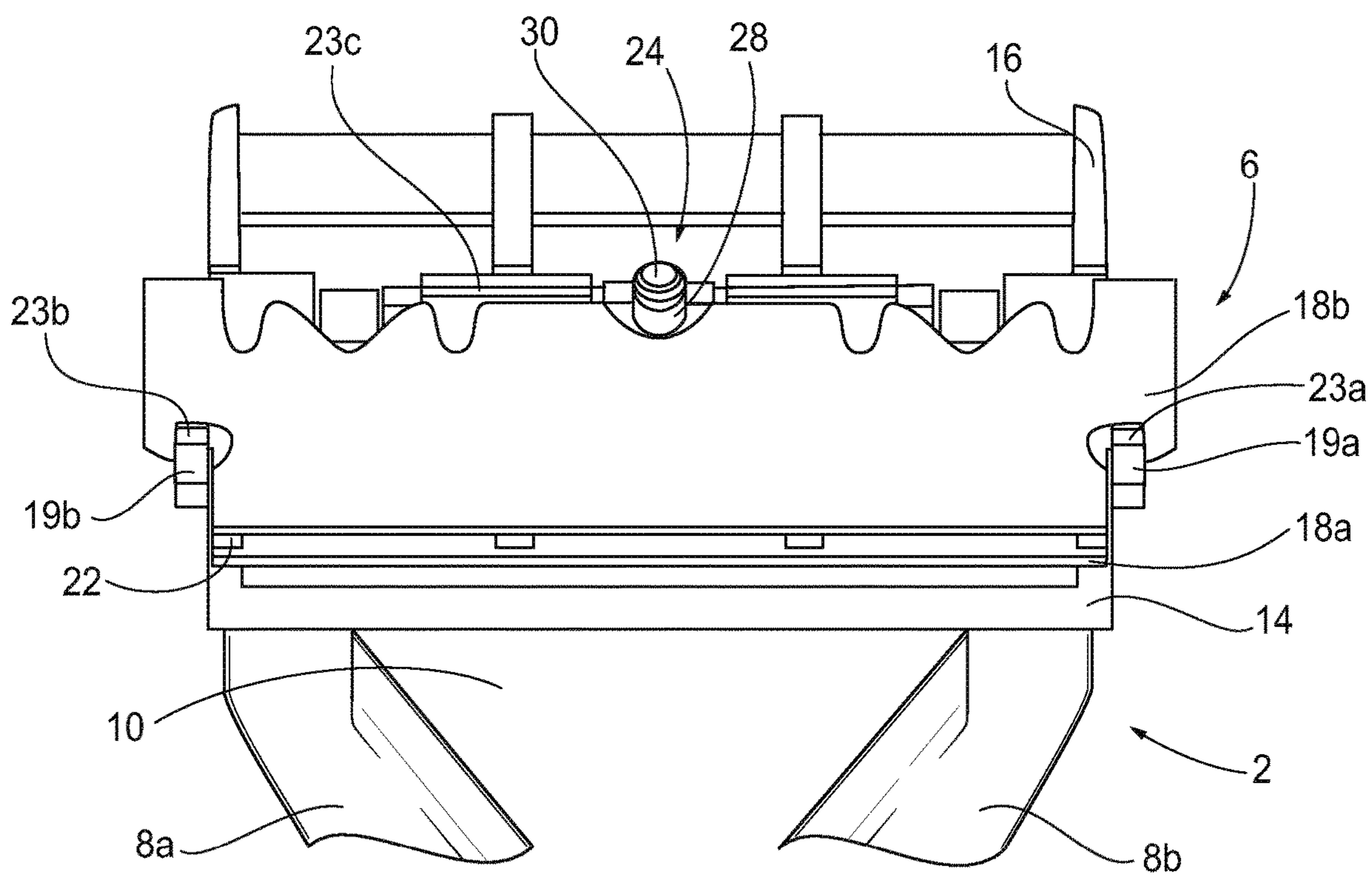


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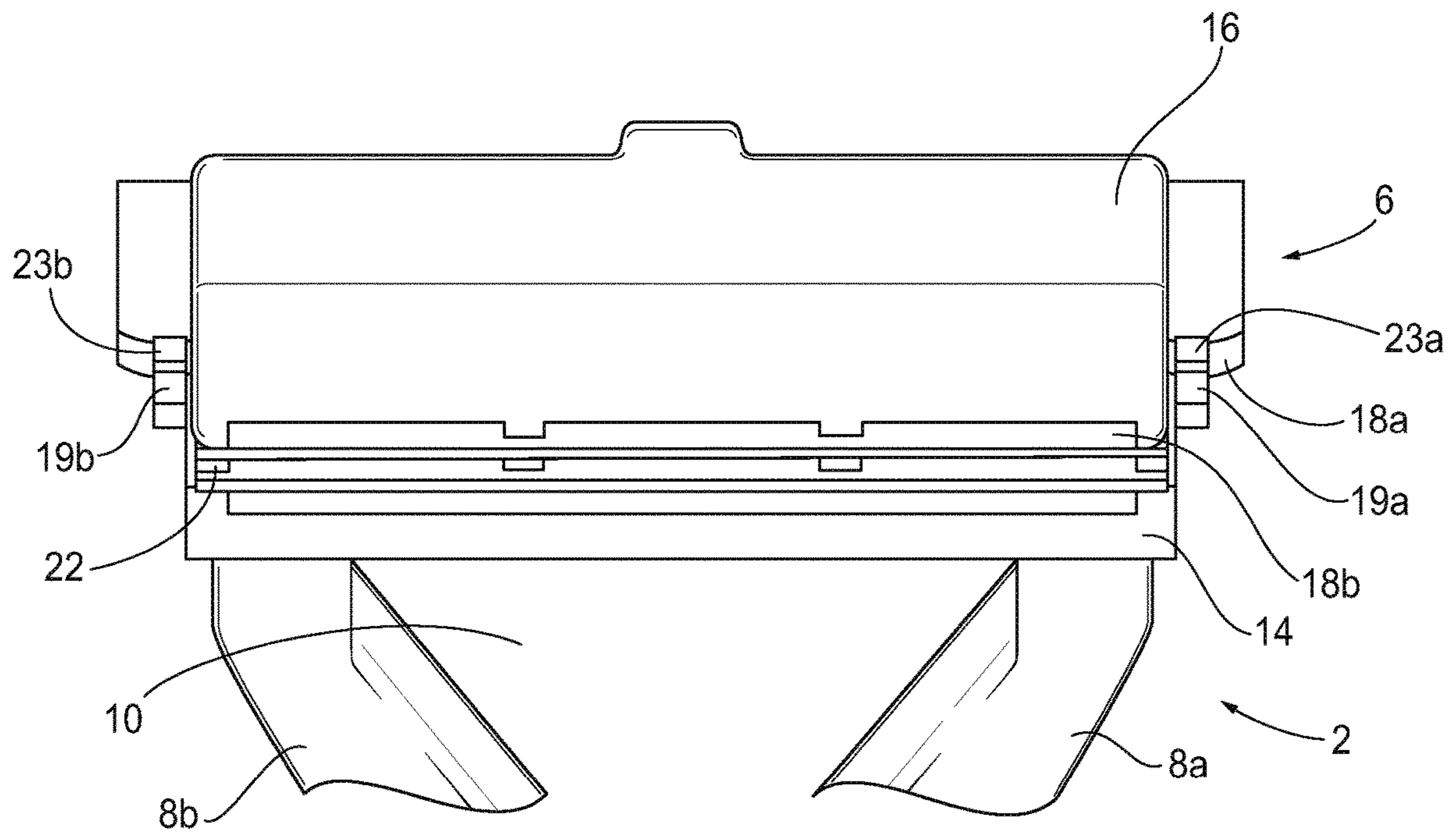


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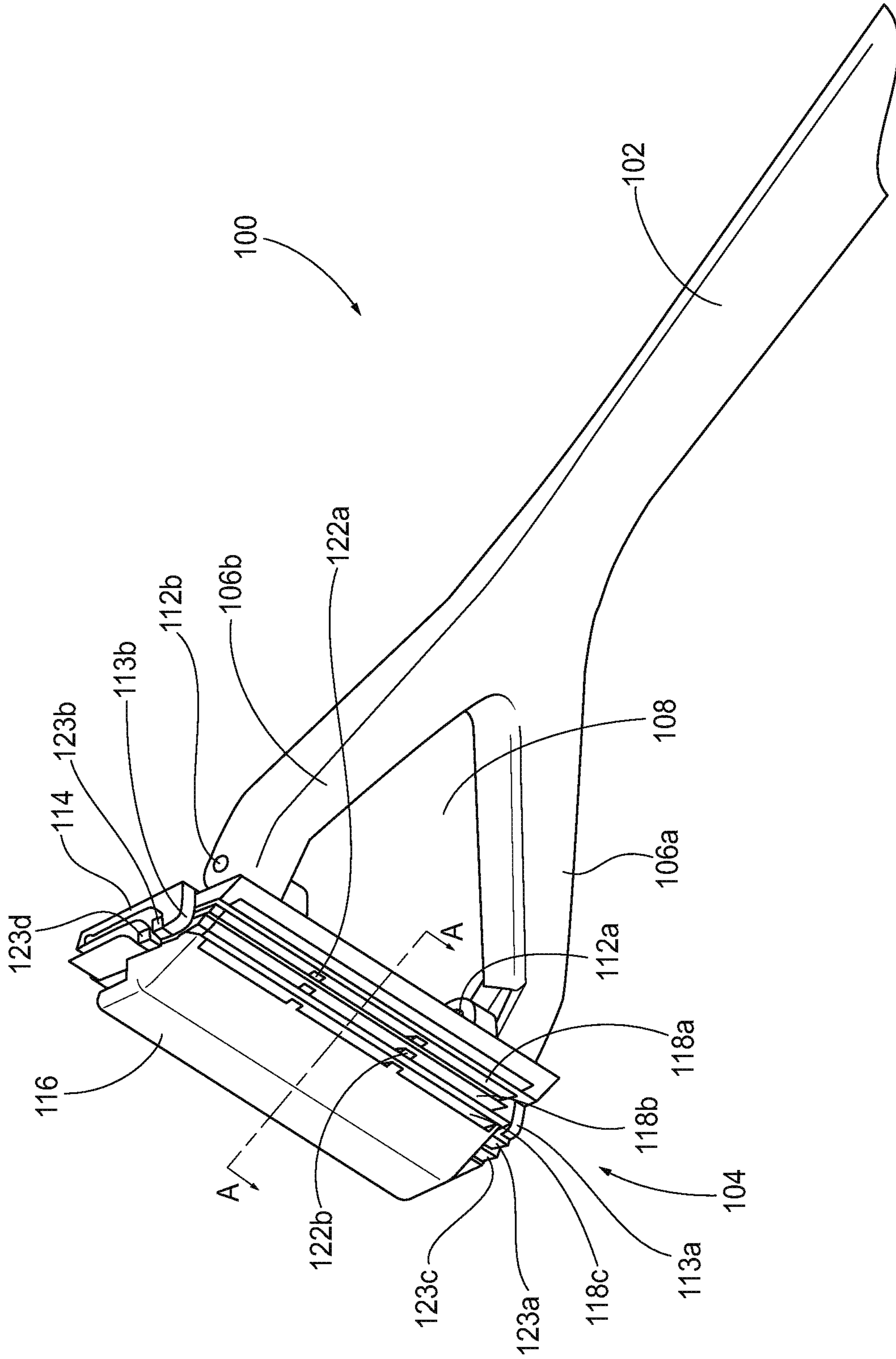


FIG. 11

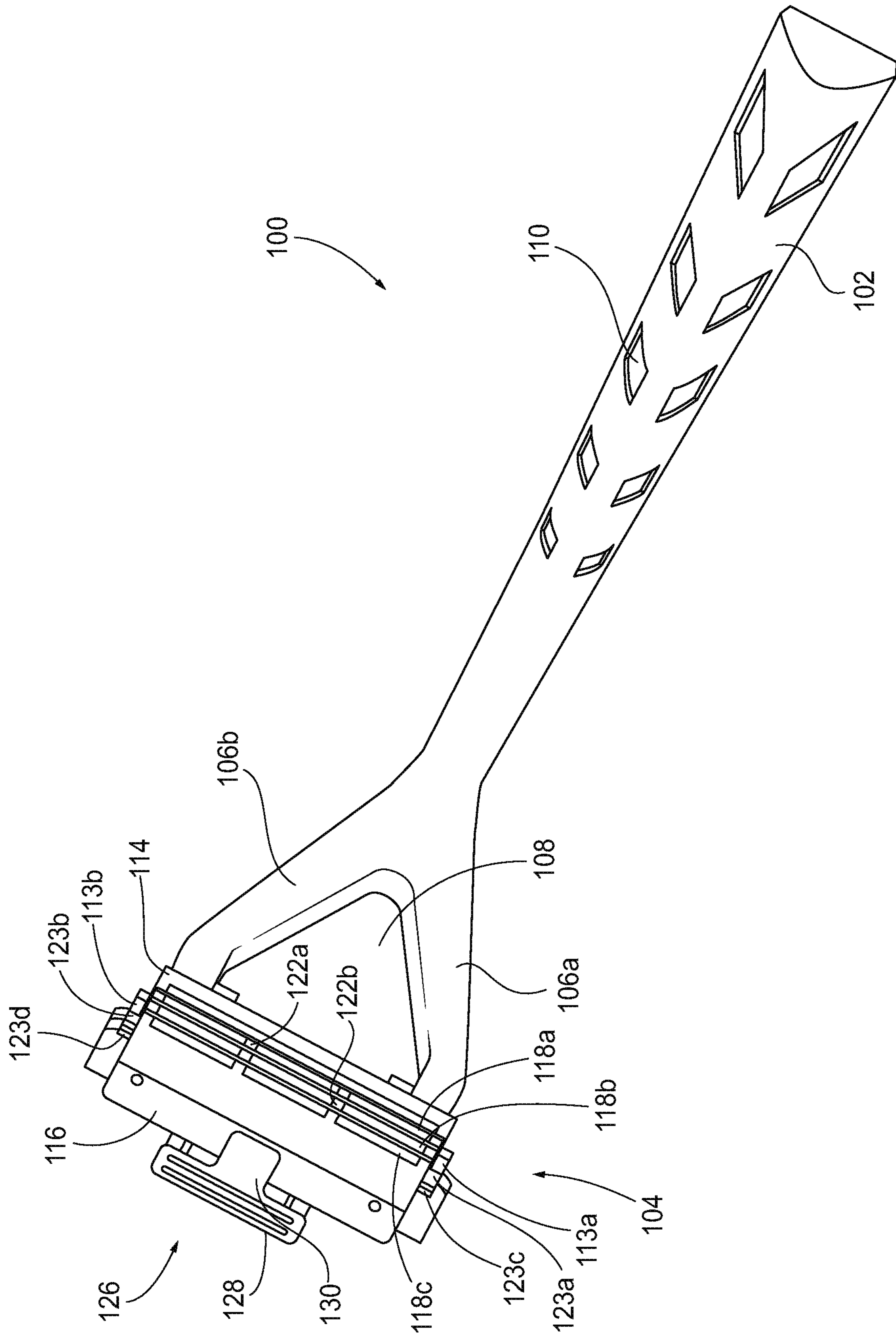


FIG. 12

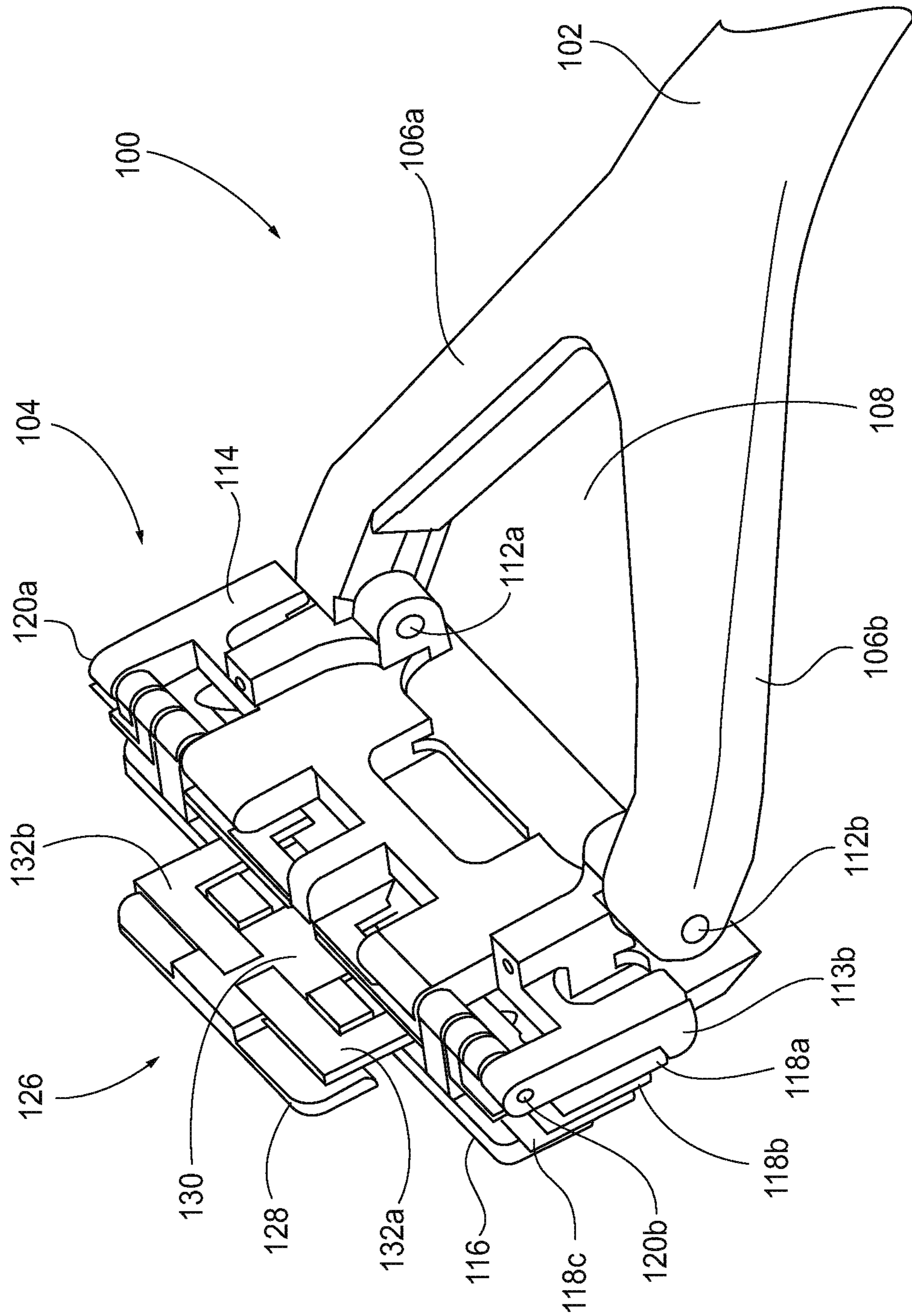


FIG. 13

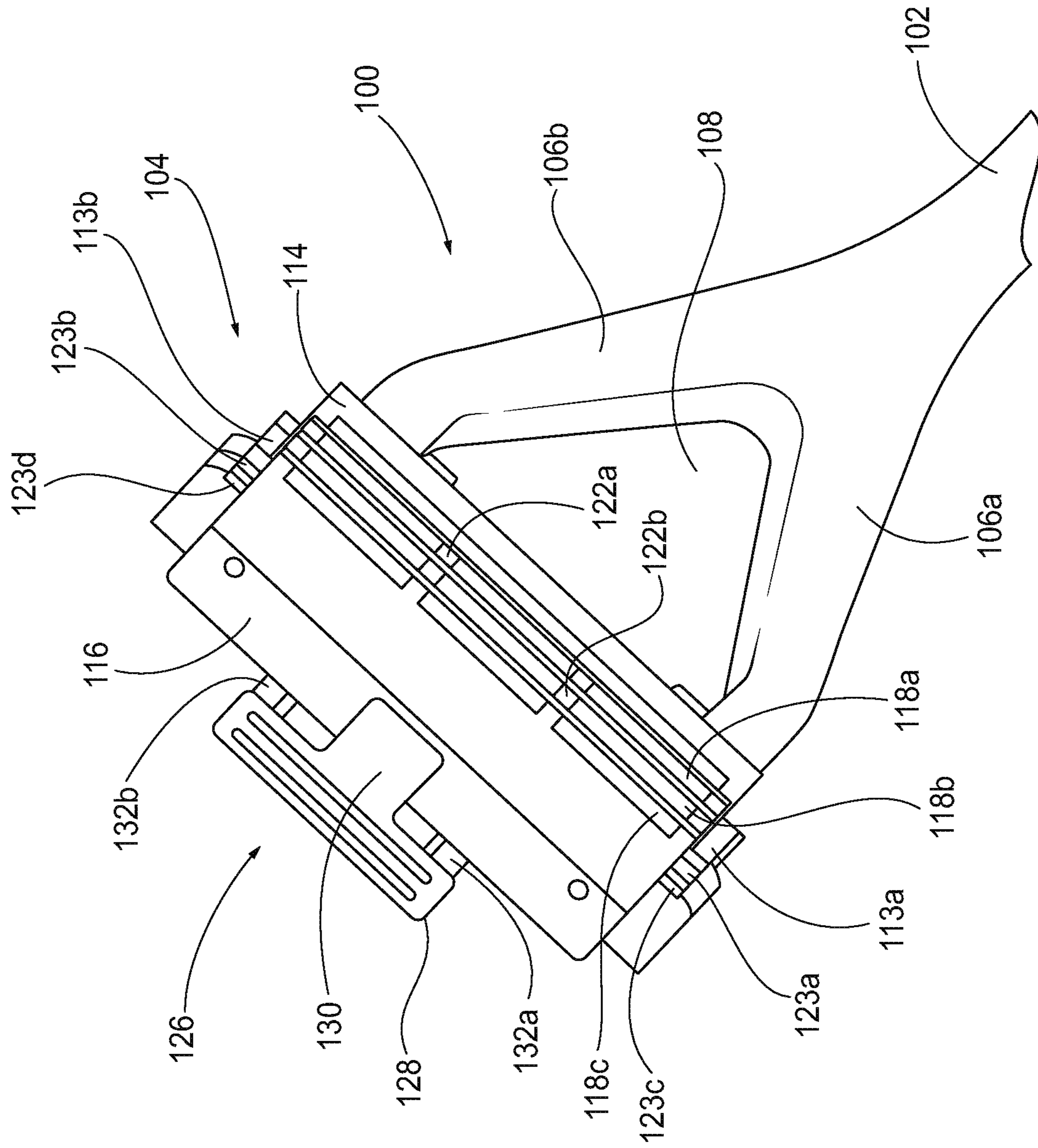


FIG. 14

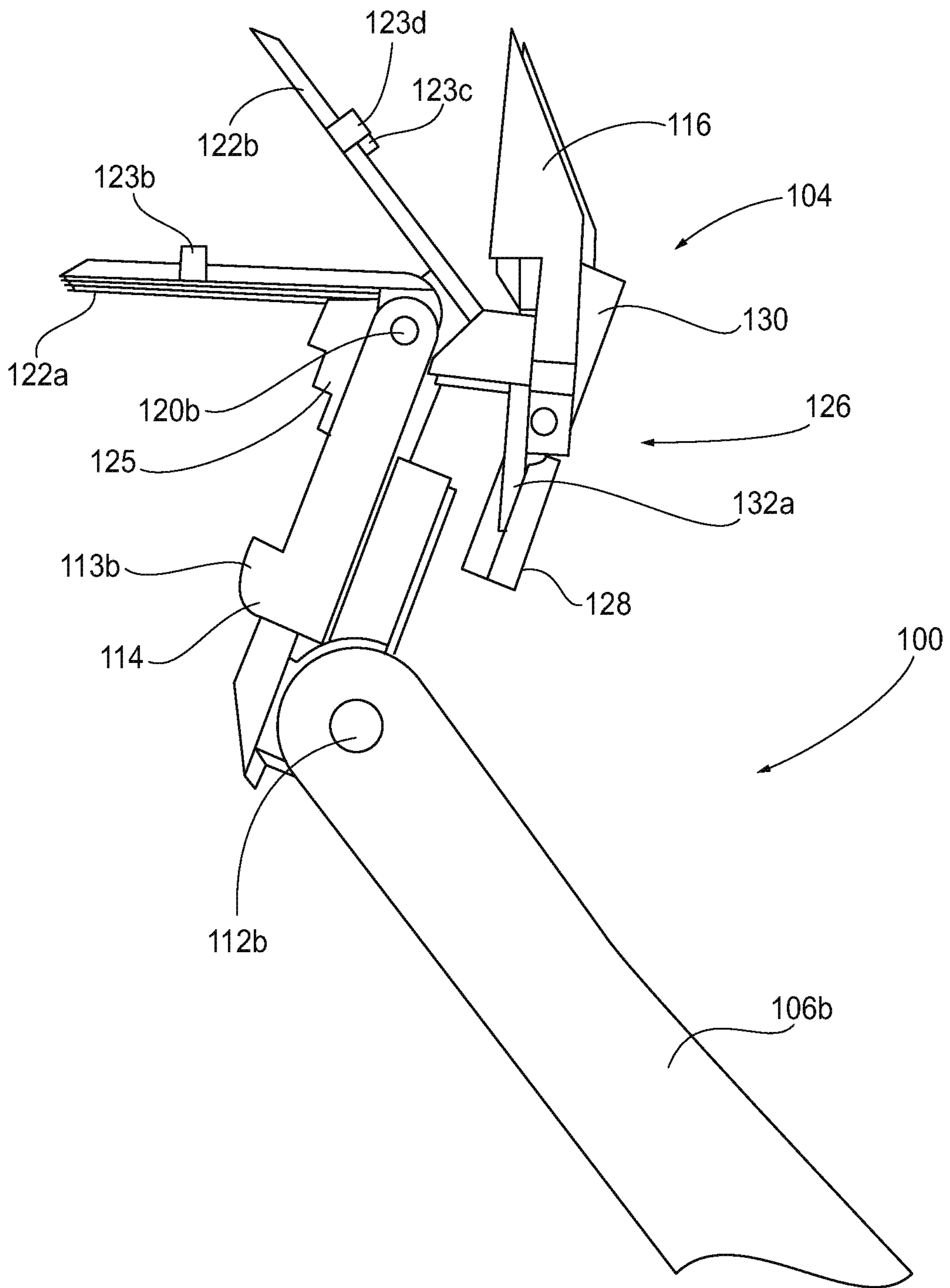


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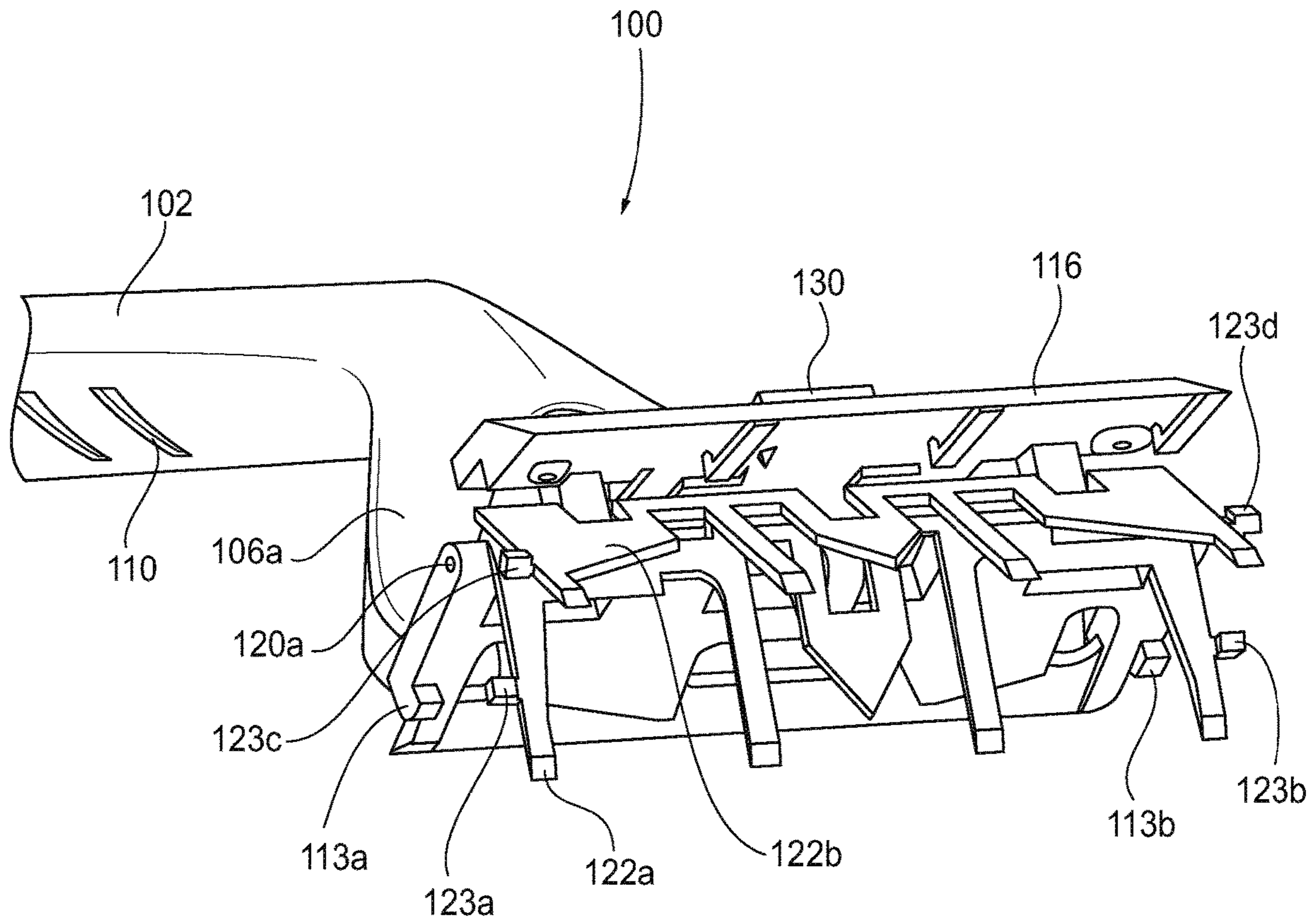


FIG. 16

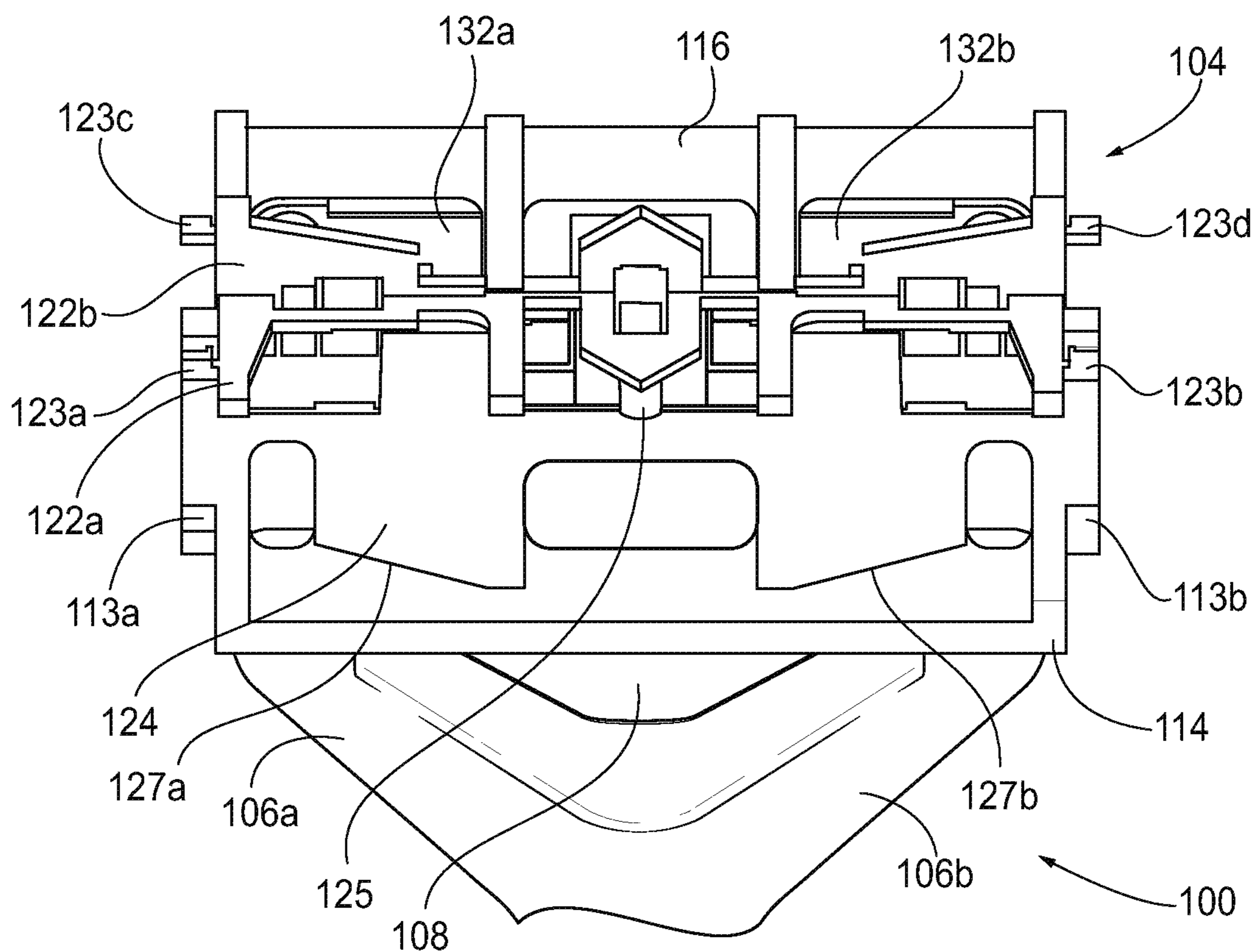


FIG. 17

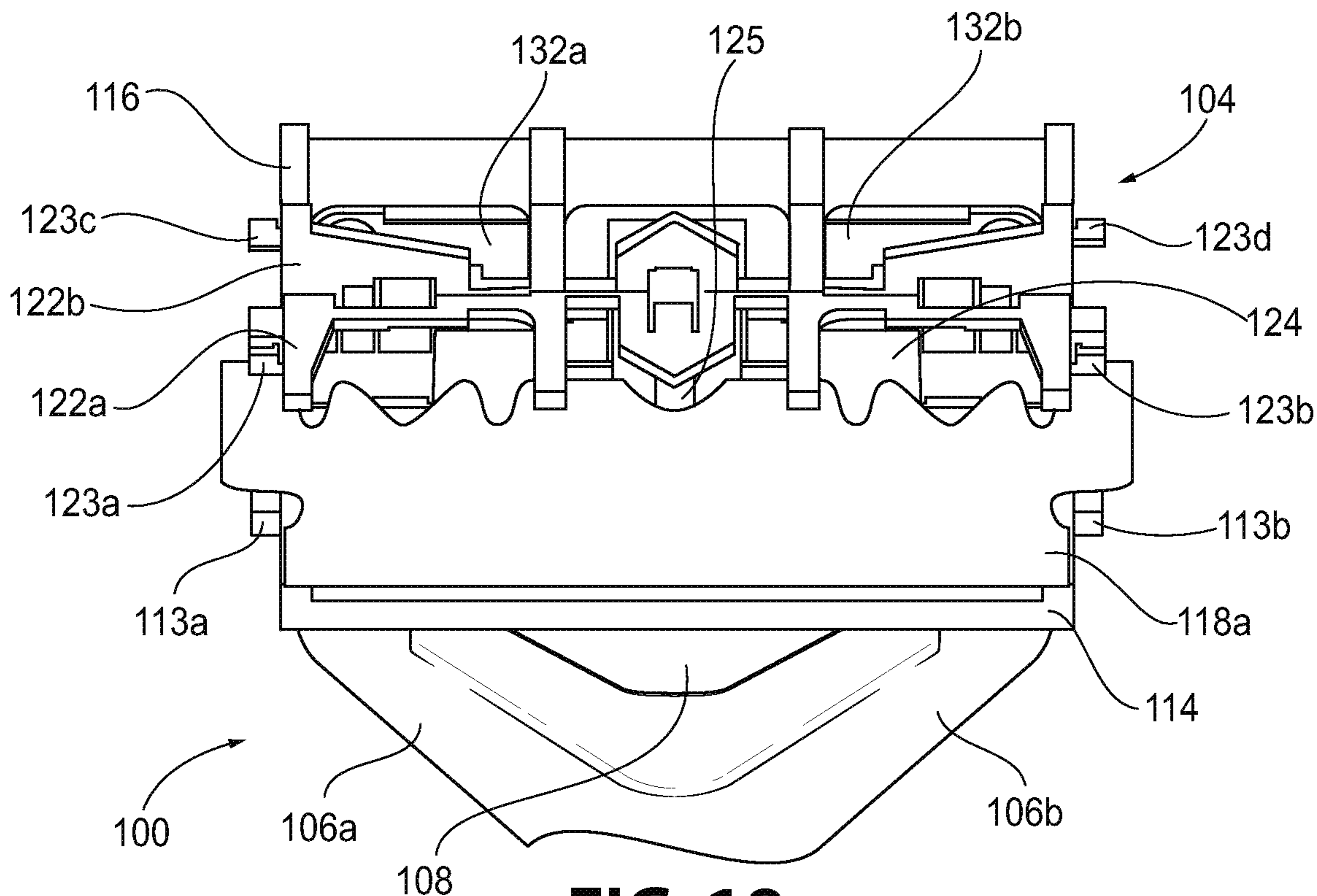


FIG. 18

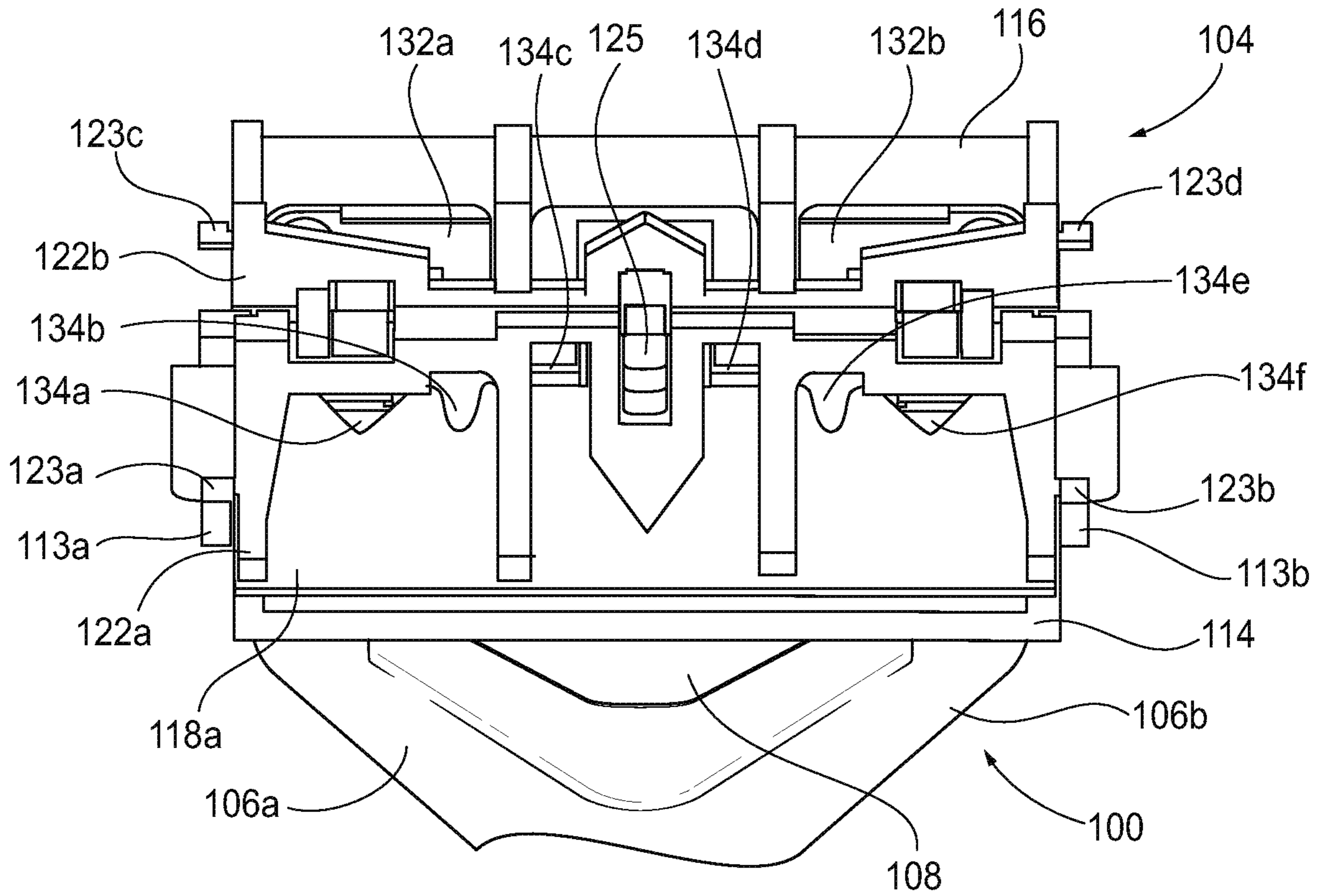


FIG. 19

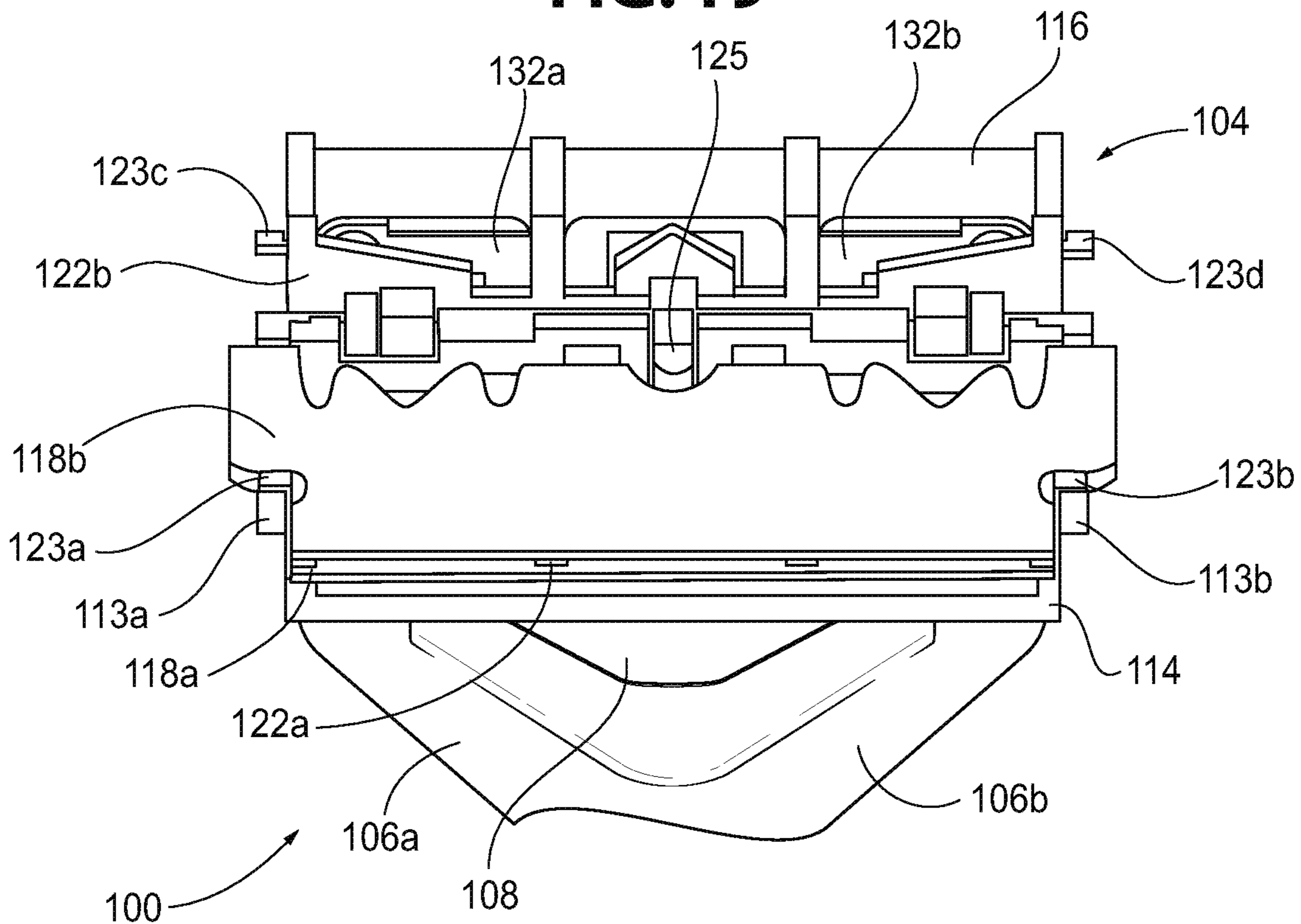


FIG. 20

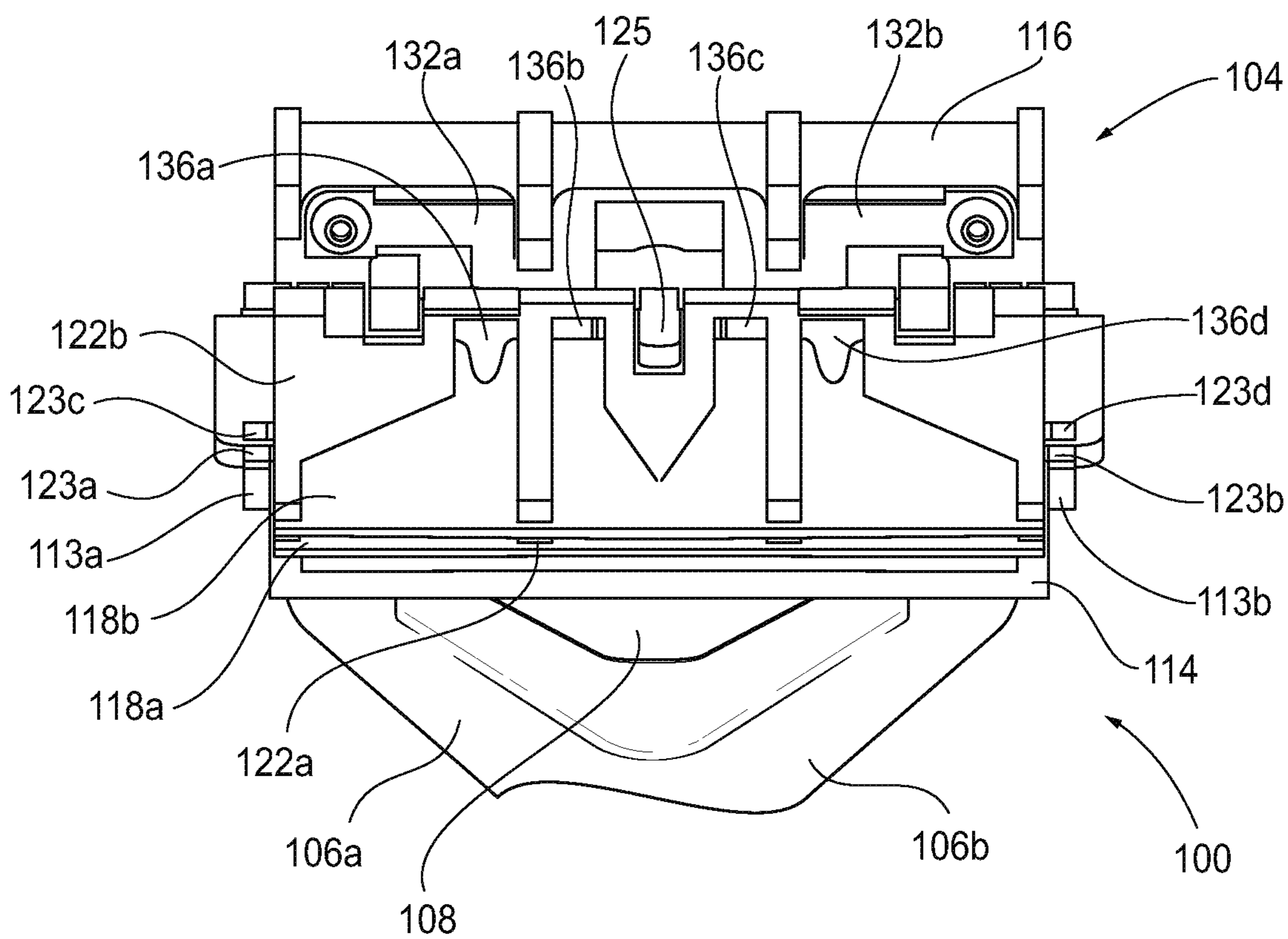


FIG. 21

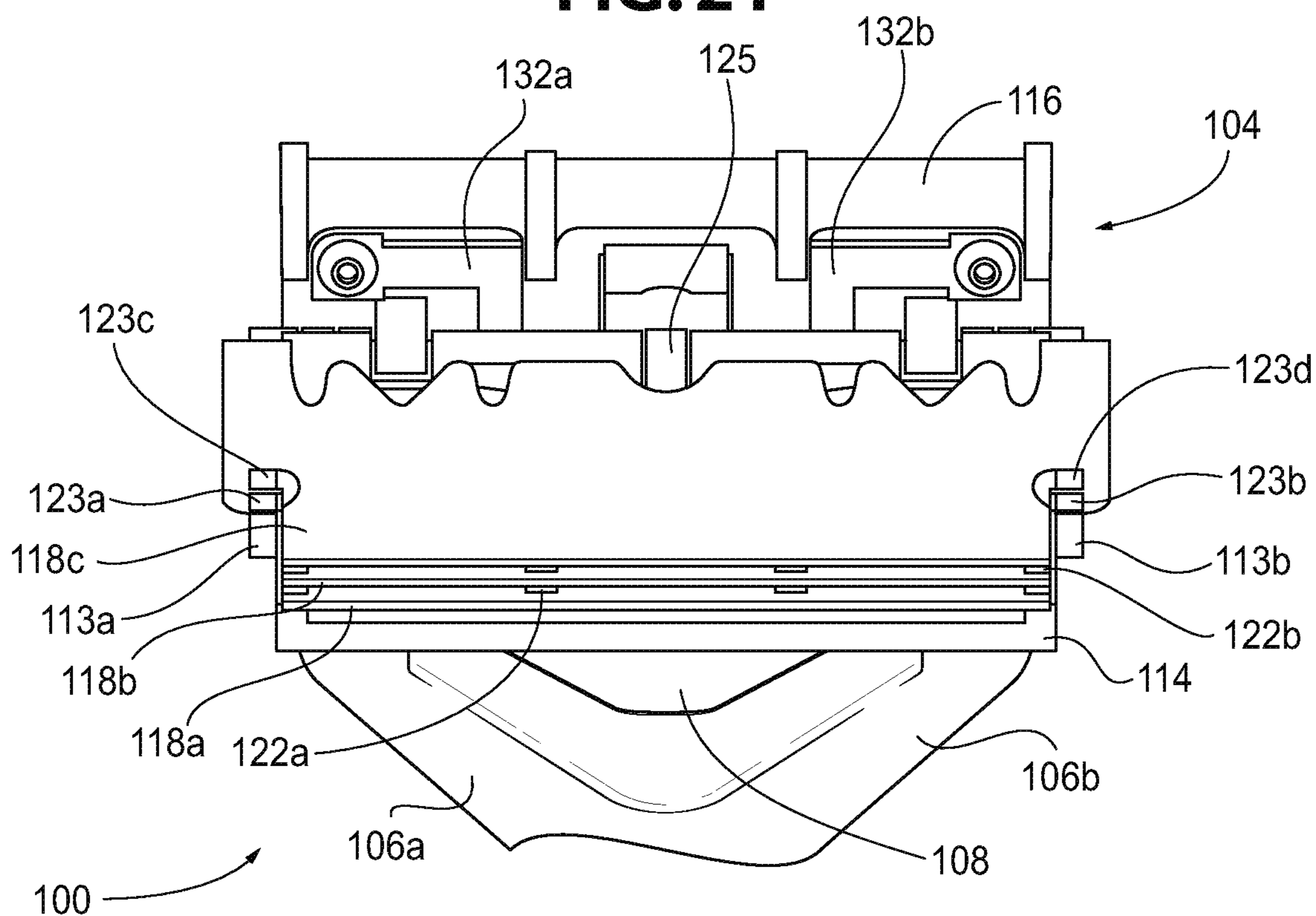


FIG. 22

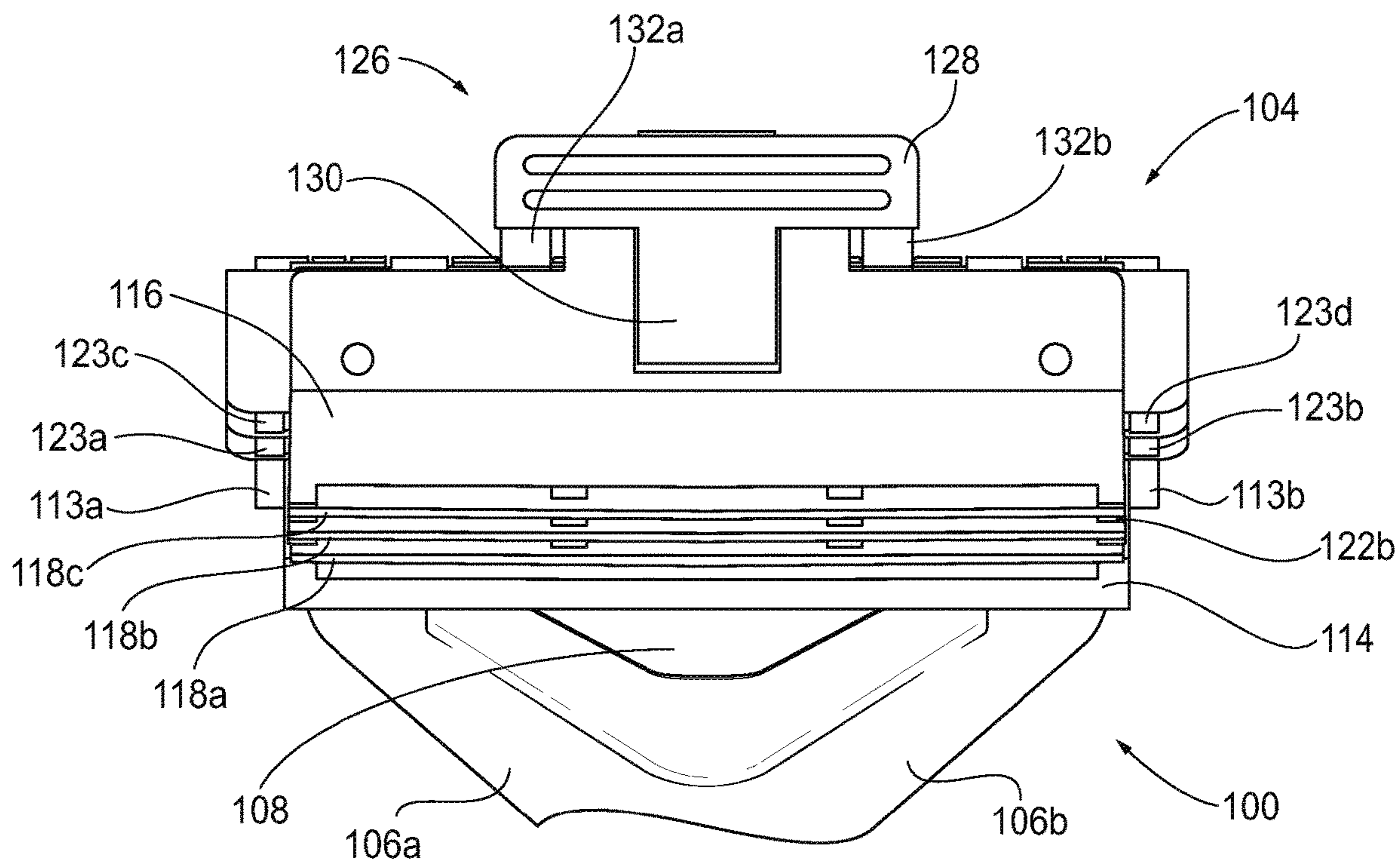


FIG. 23

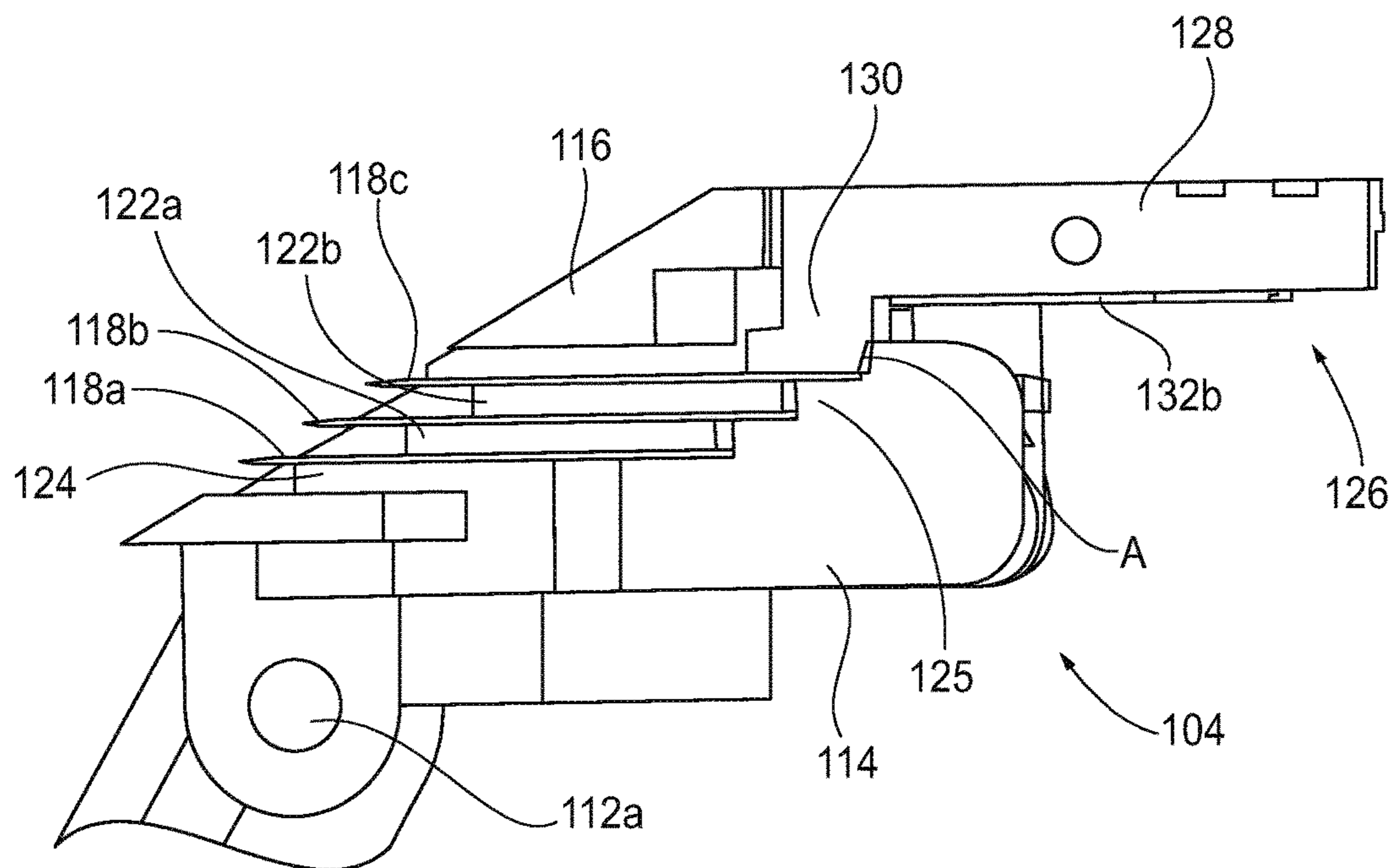


FIG. 24

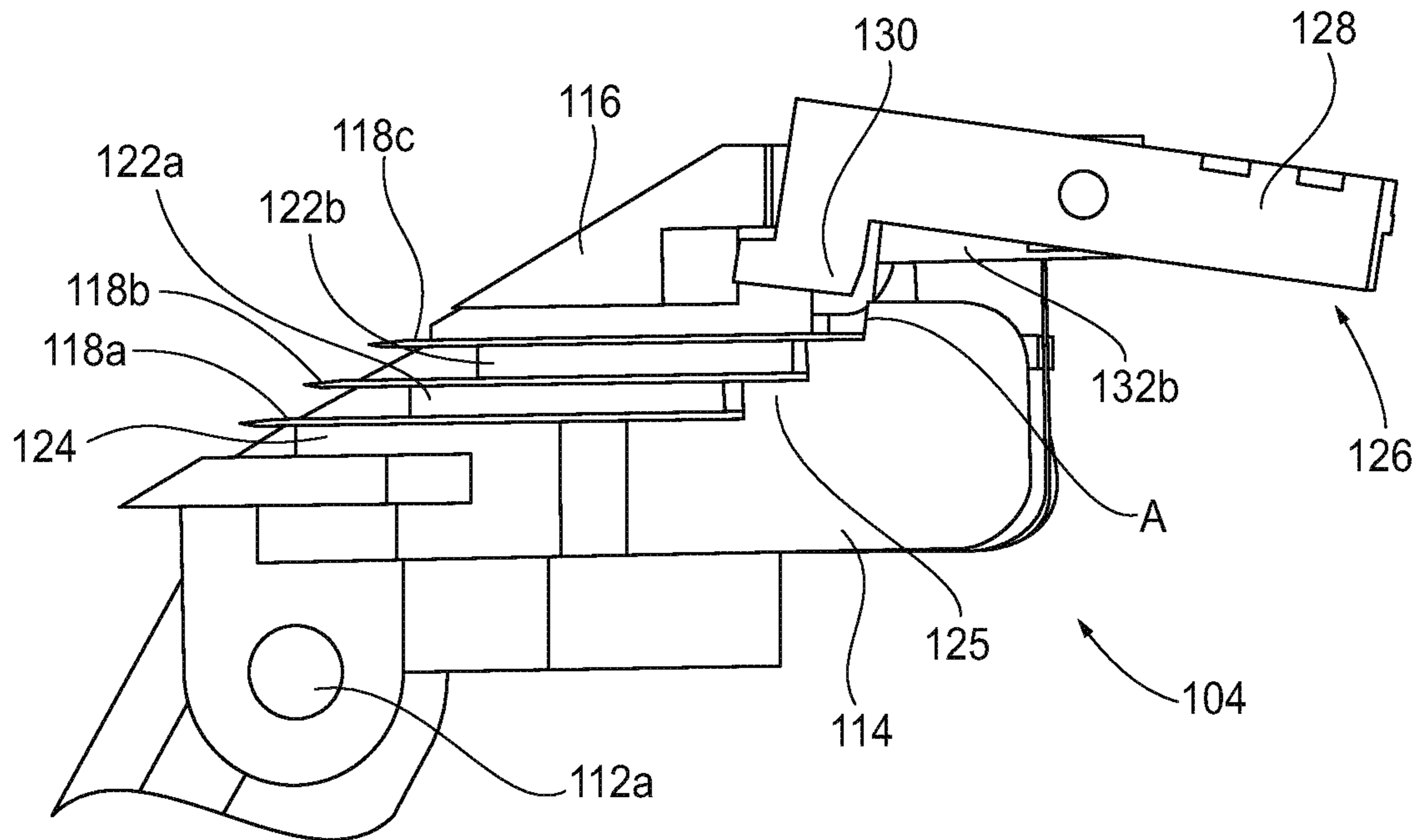


FIG. 25

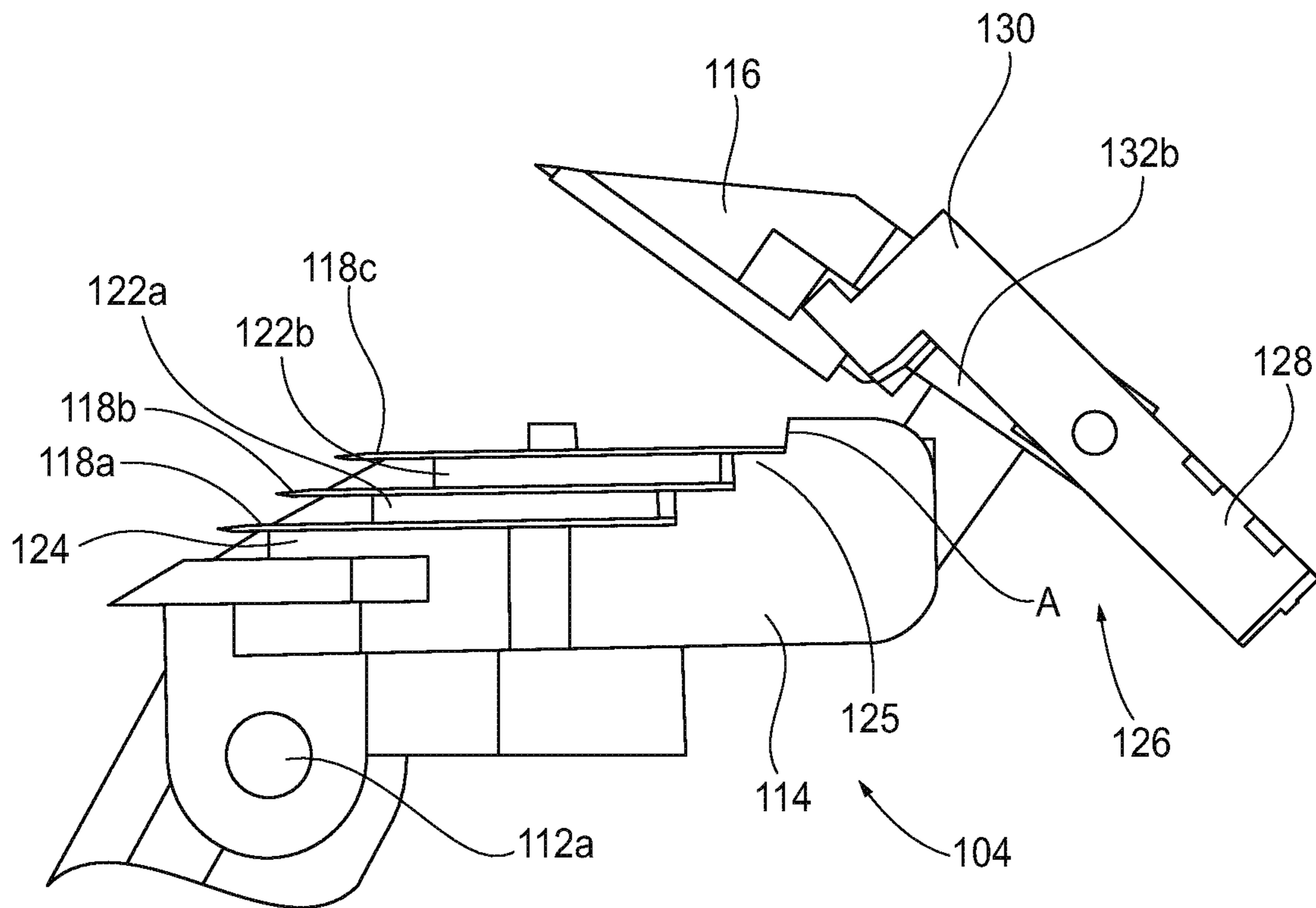


FIG. 26

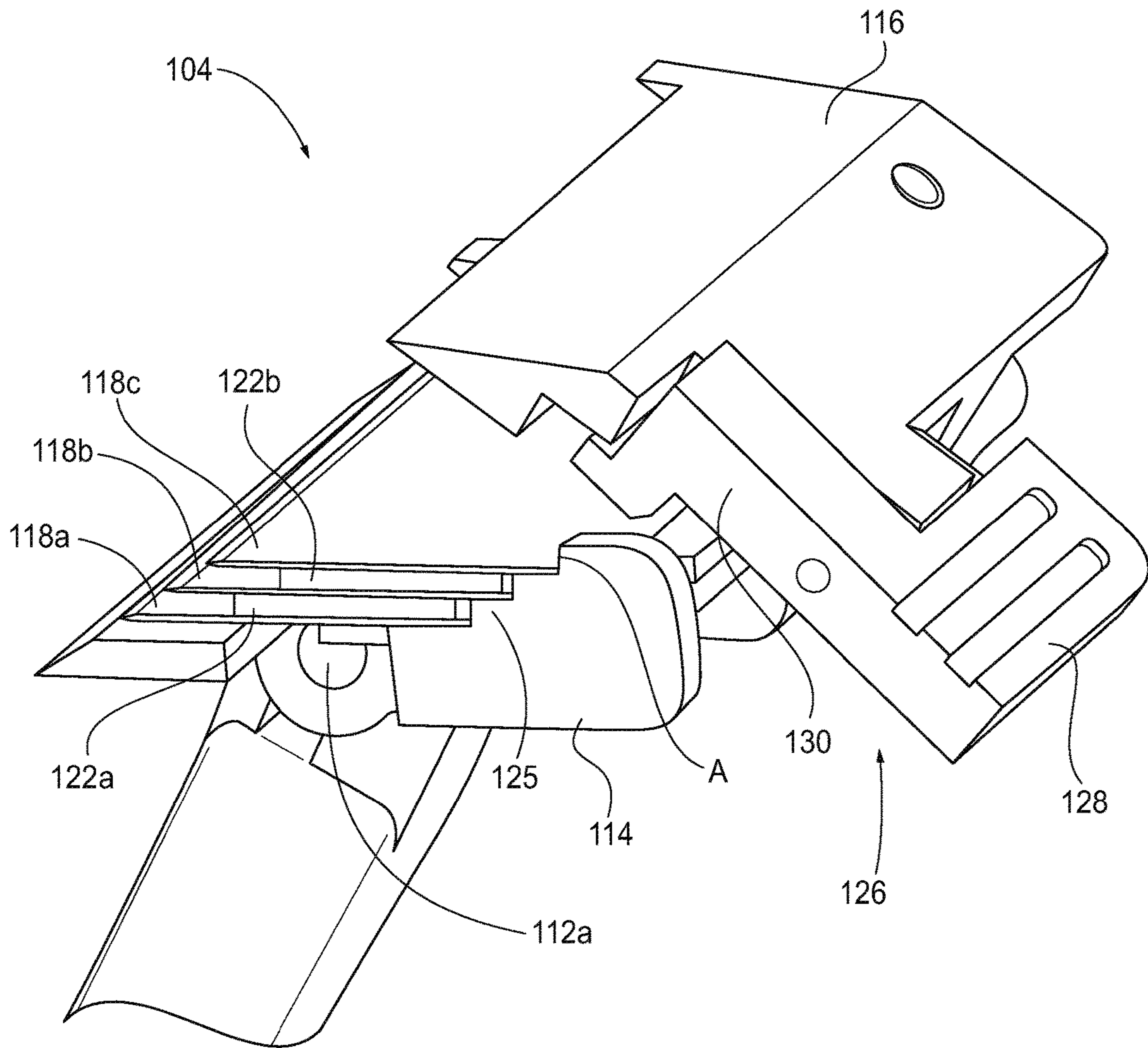


FIG. 27

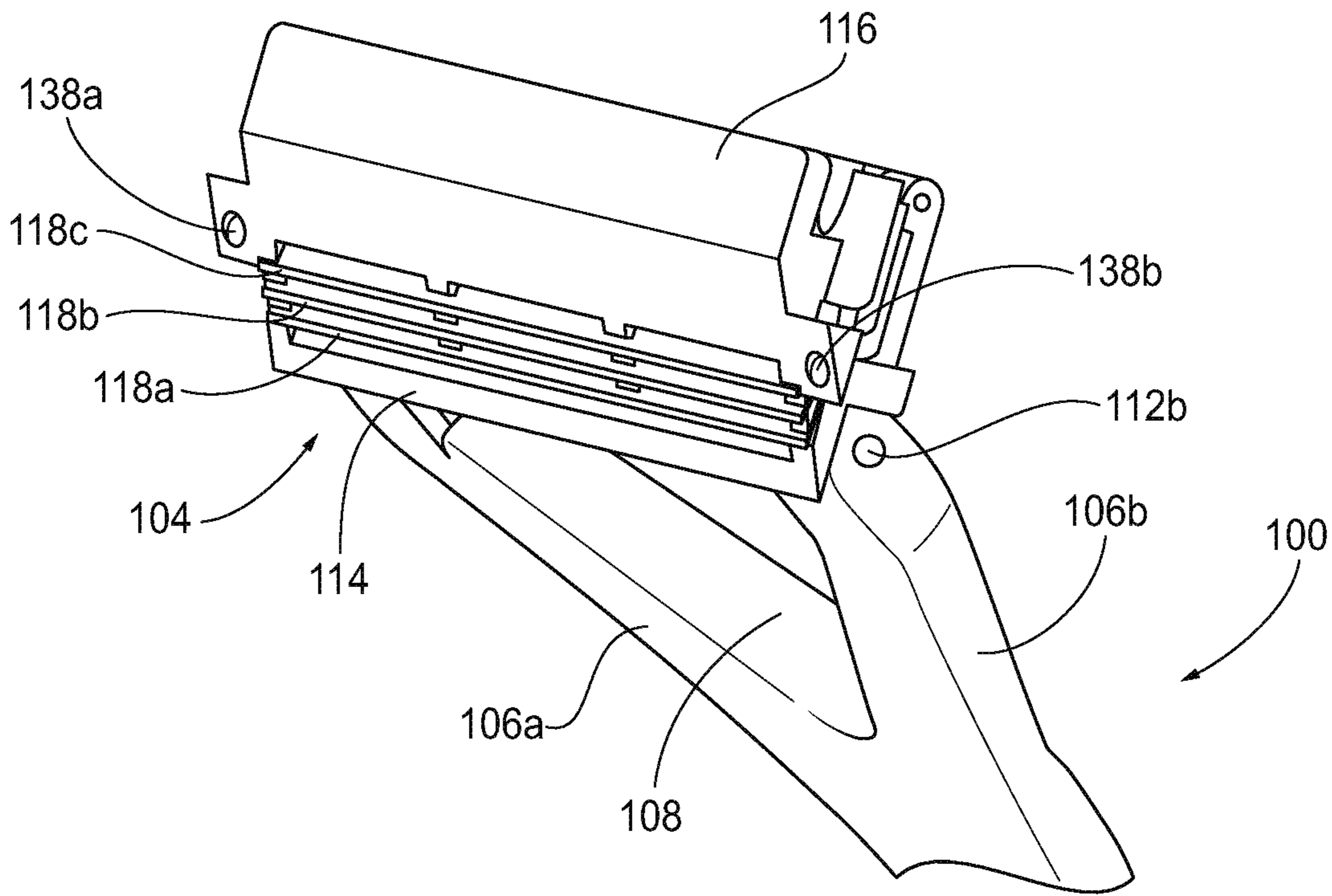


FIG. 28

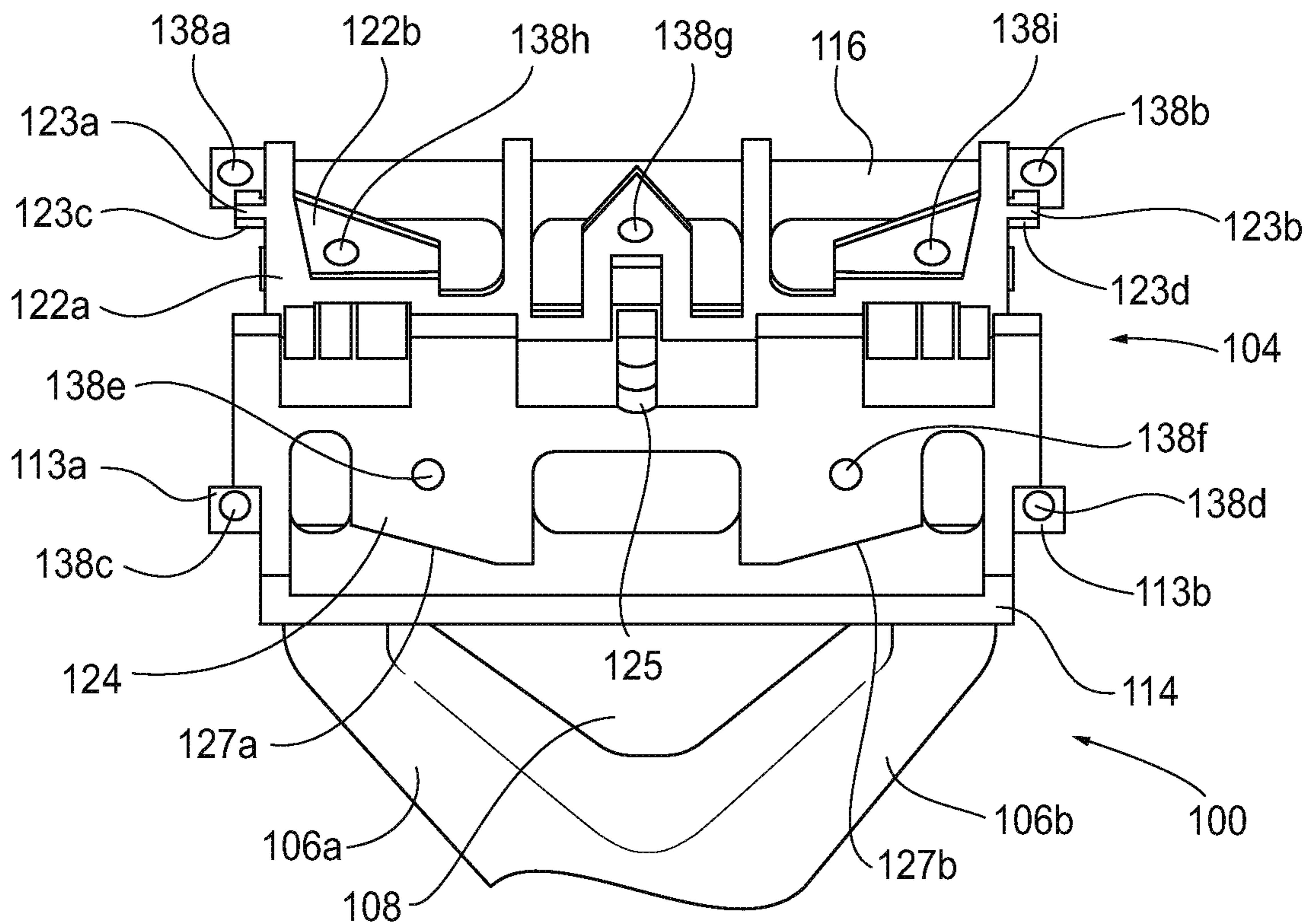


FIG. 29

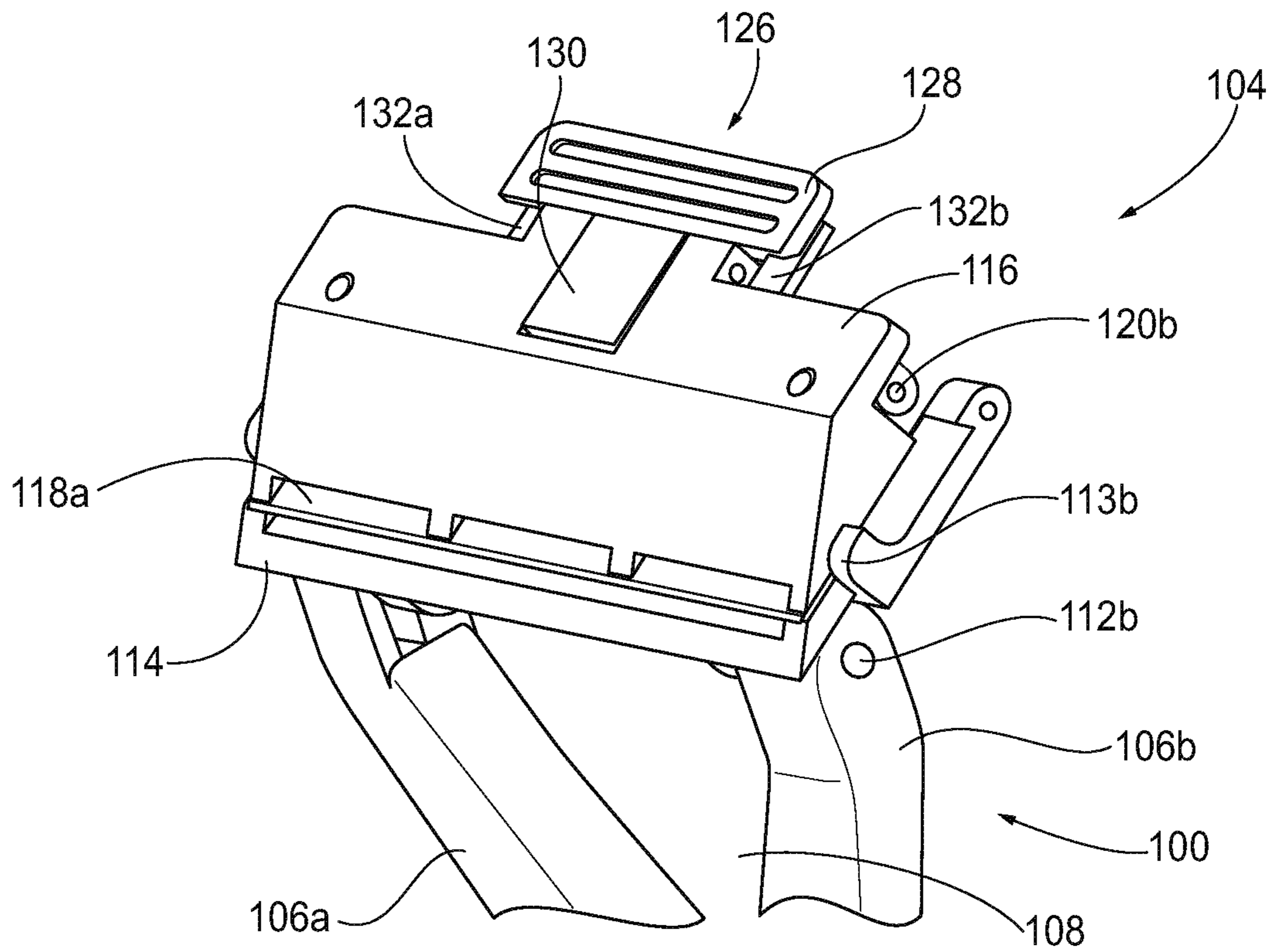


FIG. 30

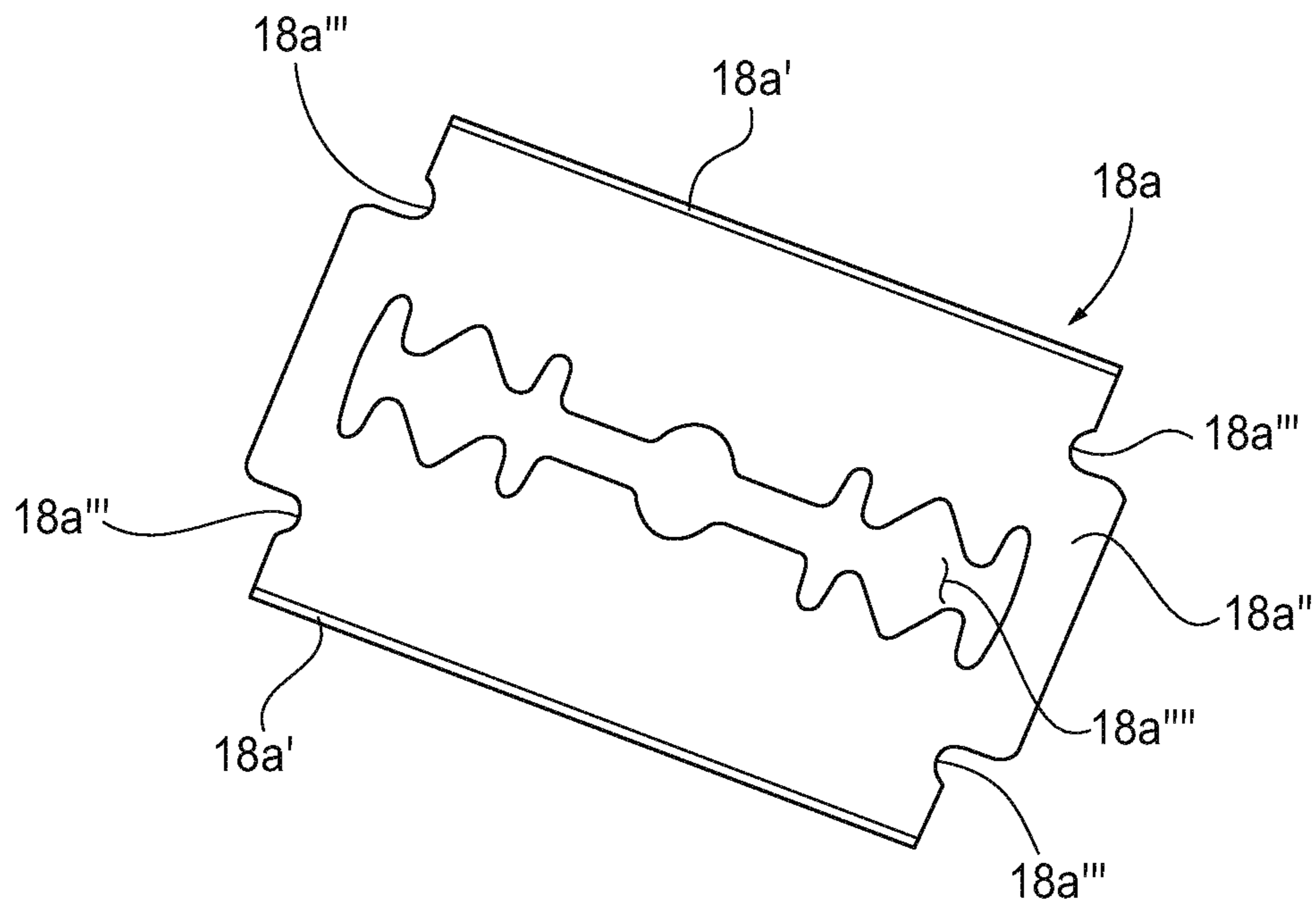
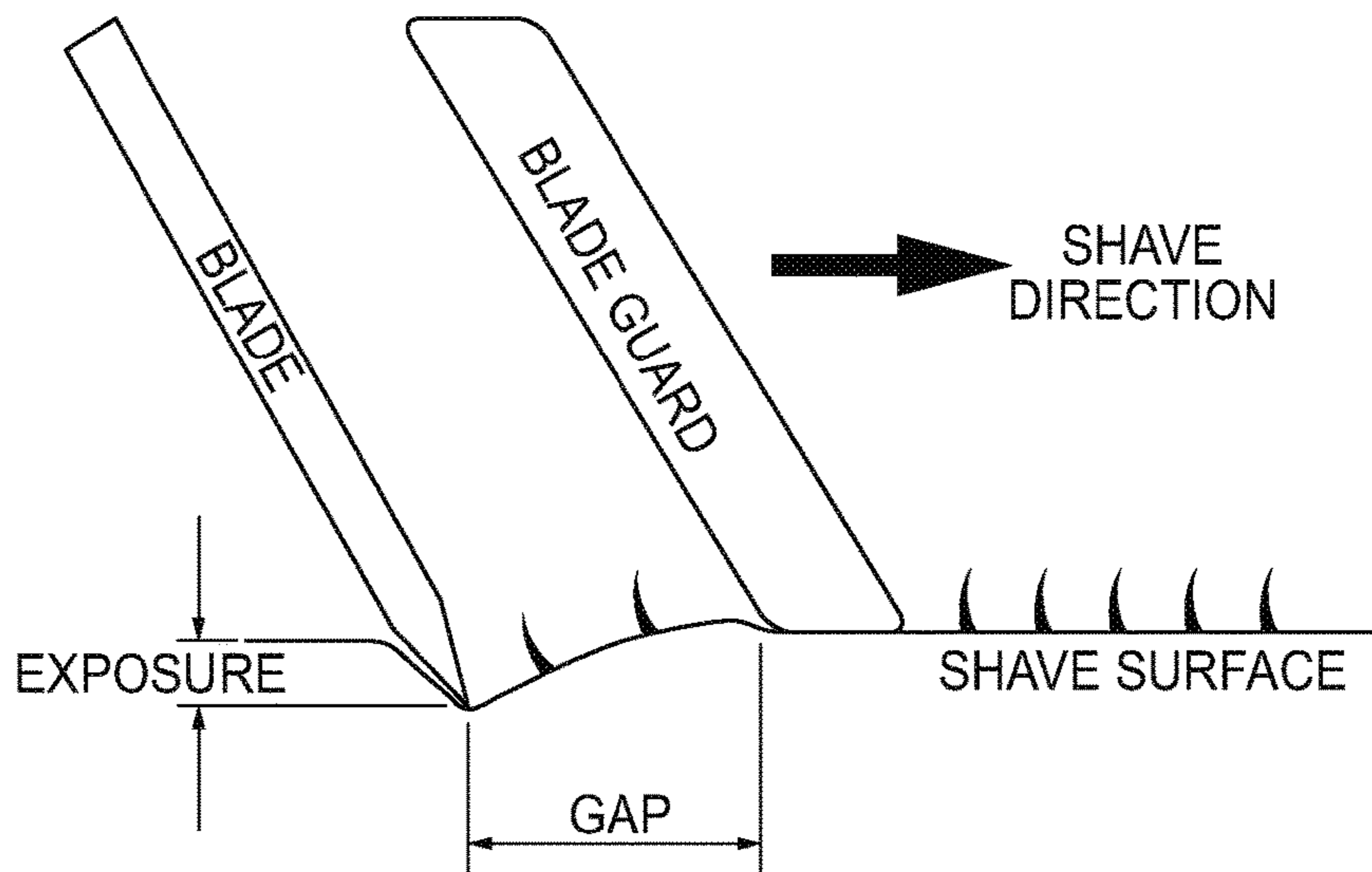
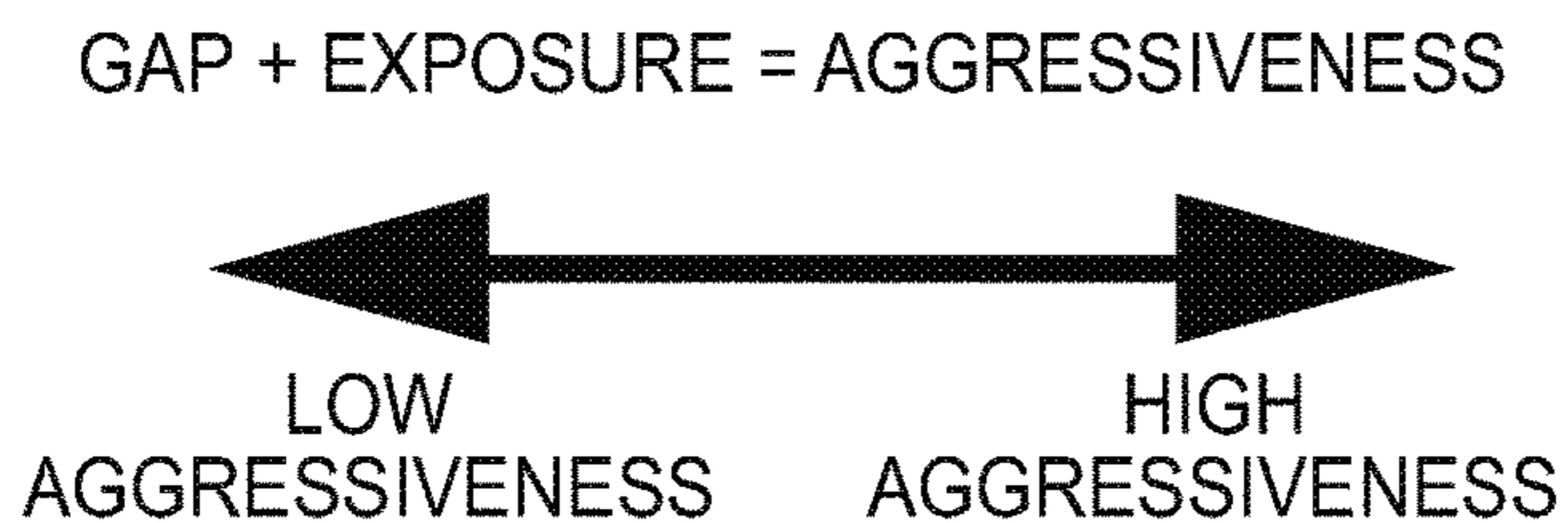


FIG. 31



LESS EFFECTIVE
AT CUTTING
LONGER HAIR
MINIMUM
IRRITATION
AGAINST THE
GRAIN
LOW CHANCE
OF NICKS / CUTS



CUTS LONGER
HAIR
MORE
IRRITATION
AGAINST THE
GRAIN
GREATER
CHANCE OF
NICKS / CUTS

PRIOR ART
FIG. 32

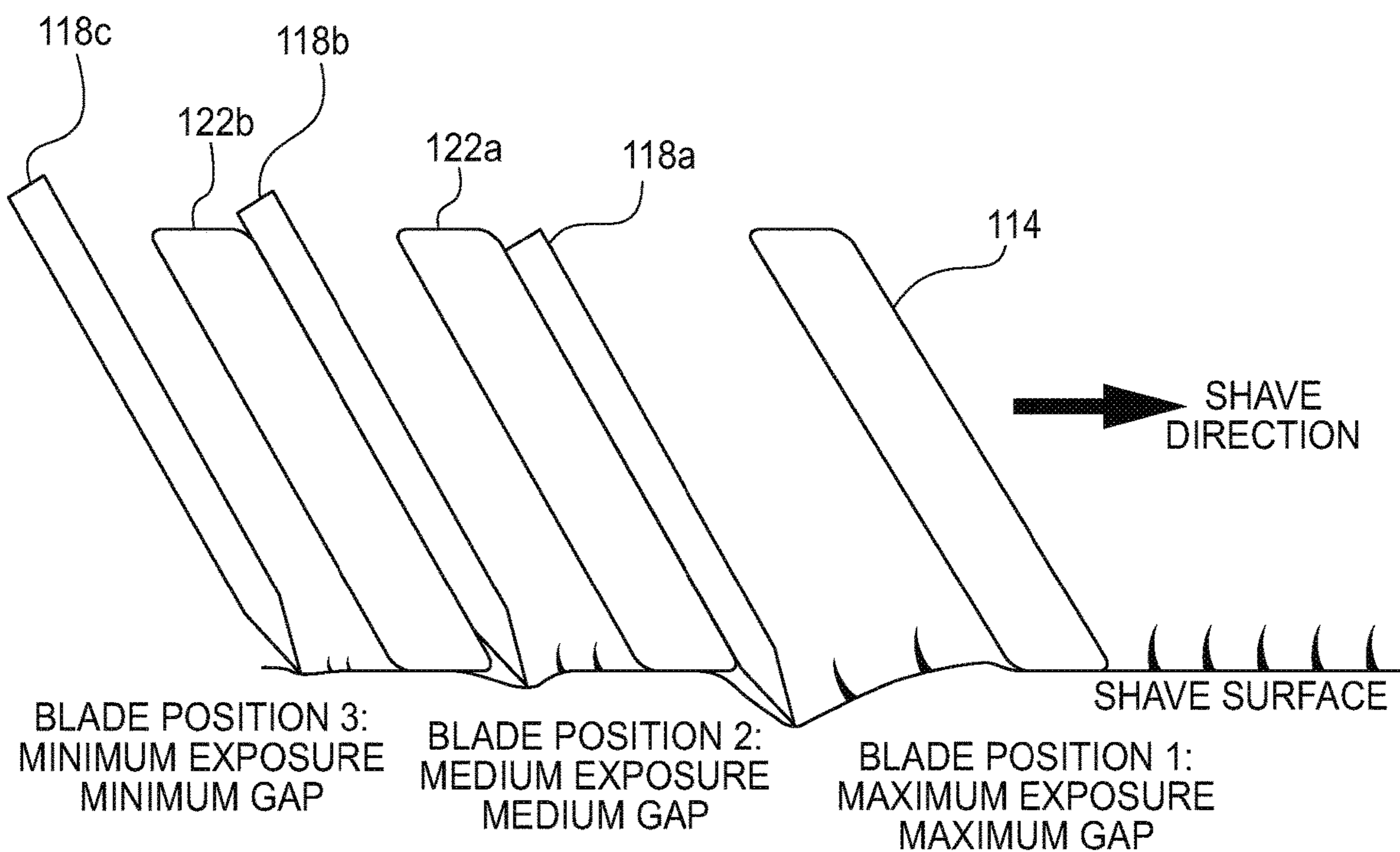


FIG. 33

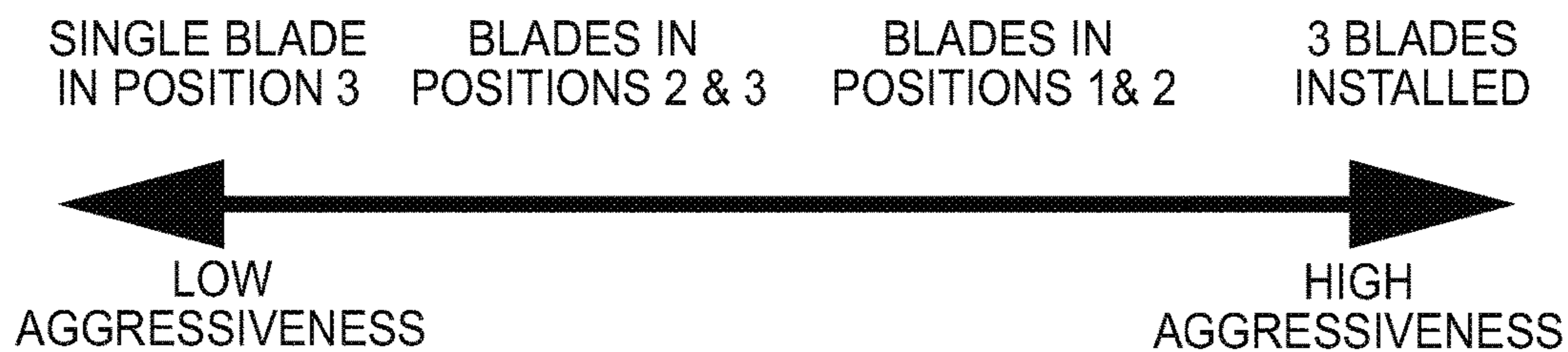


FIG. 34

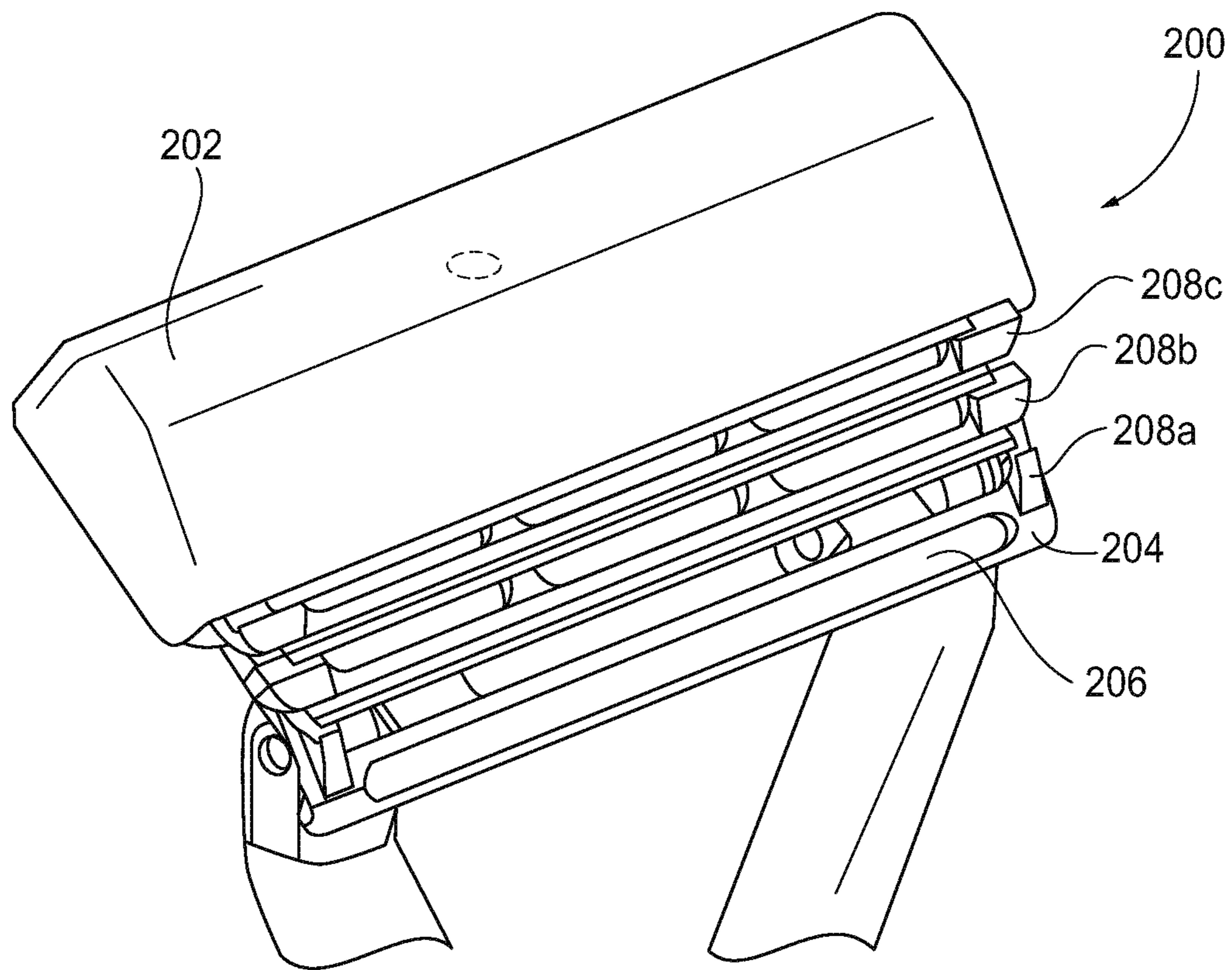


FIG. 35

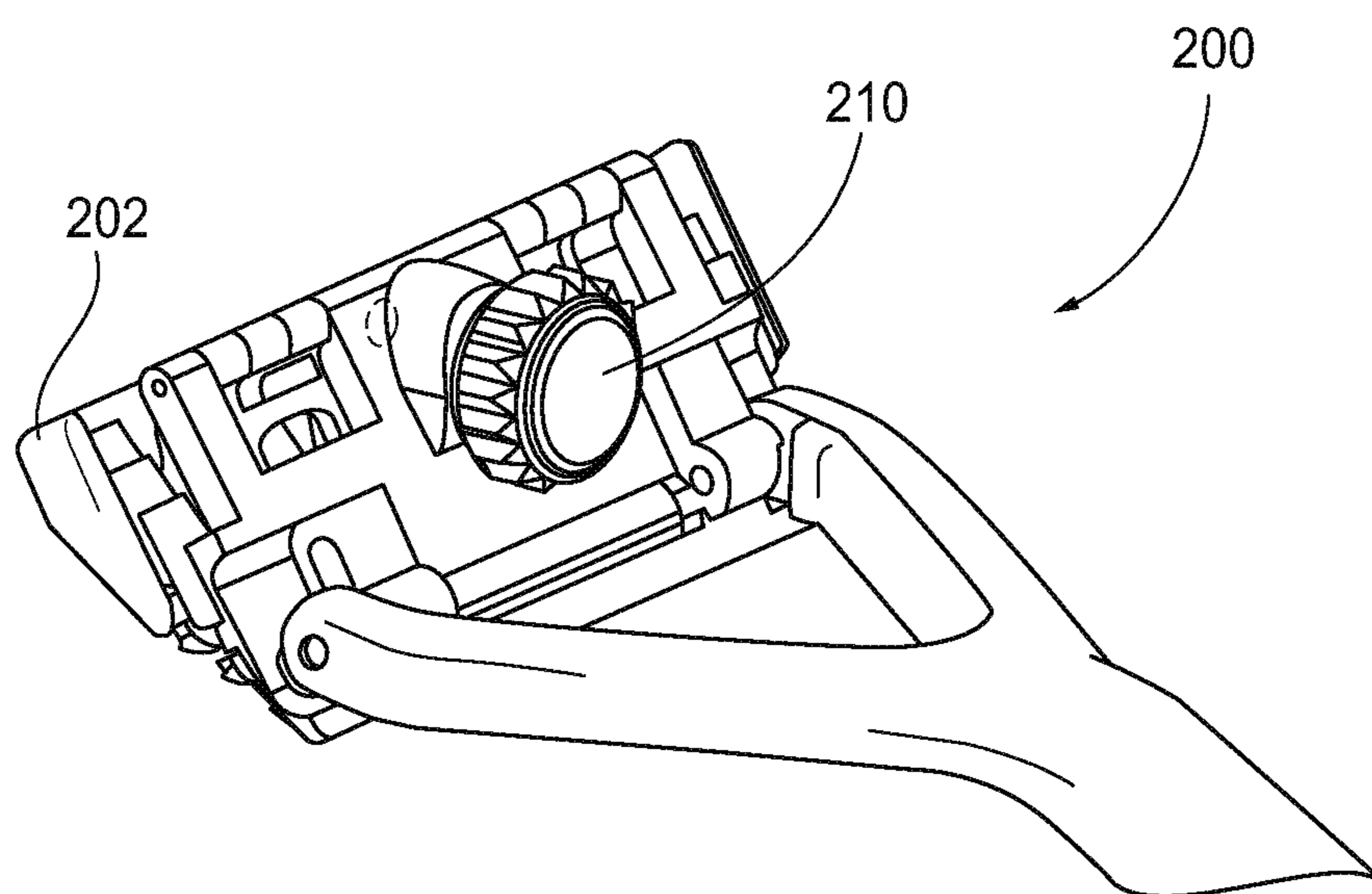


FIG. 36

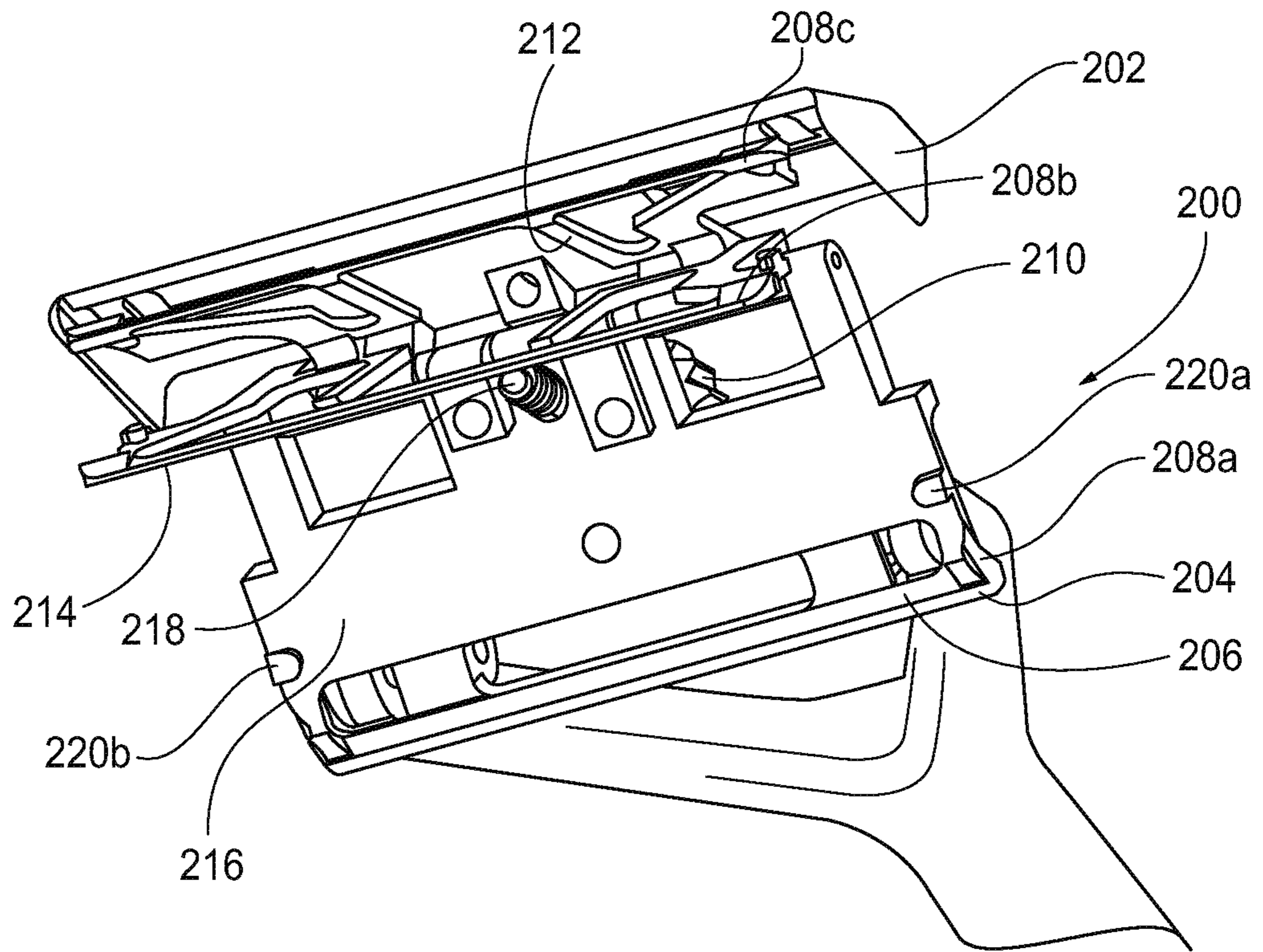


FIG. 37

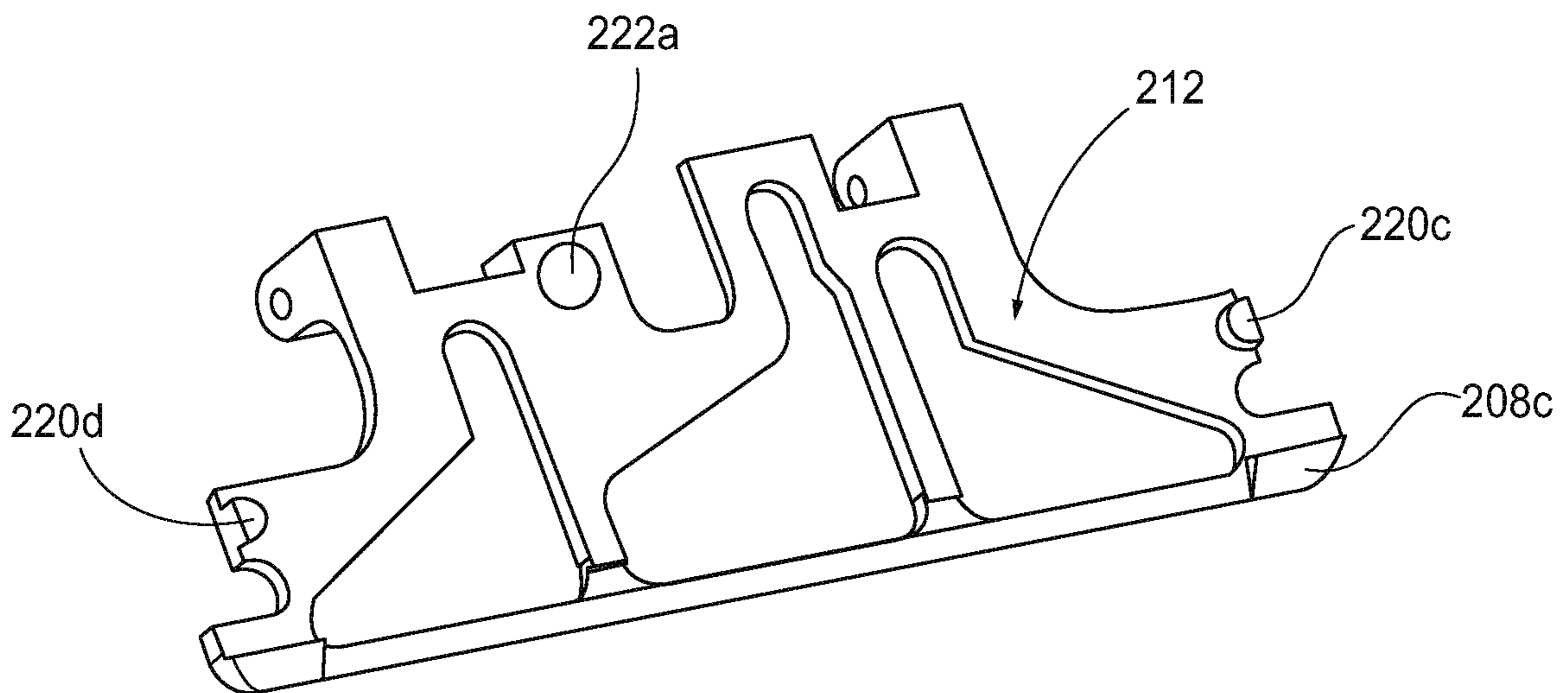


FIG. 38

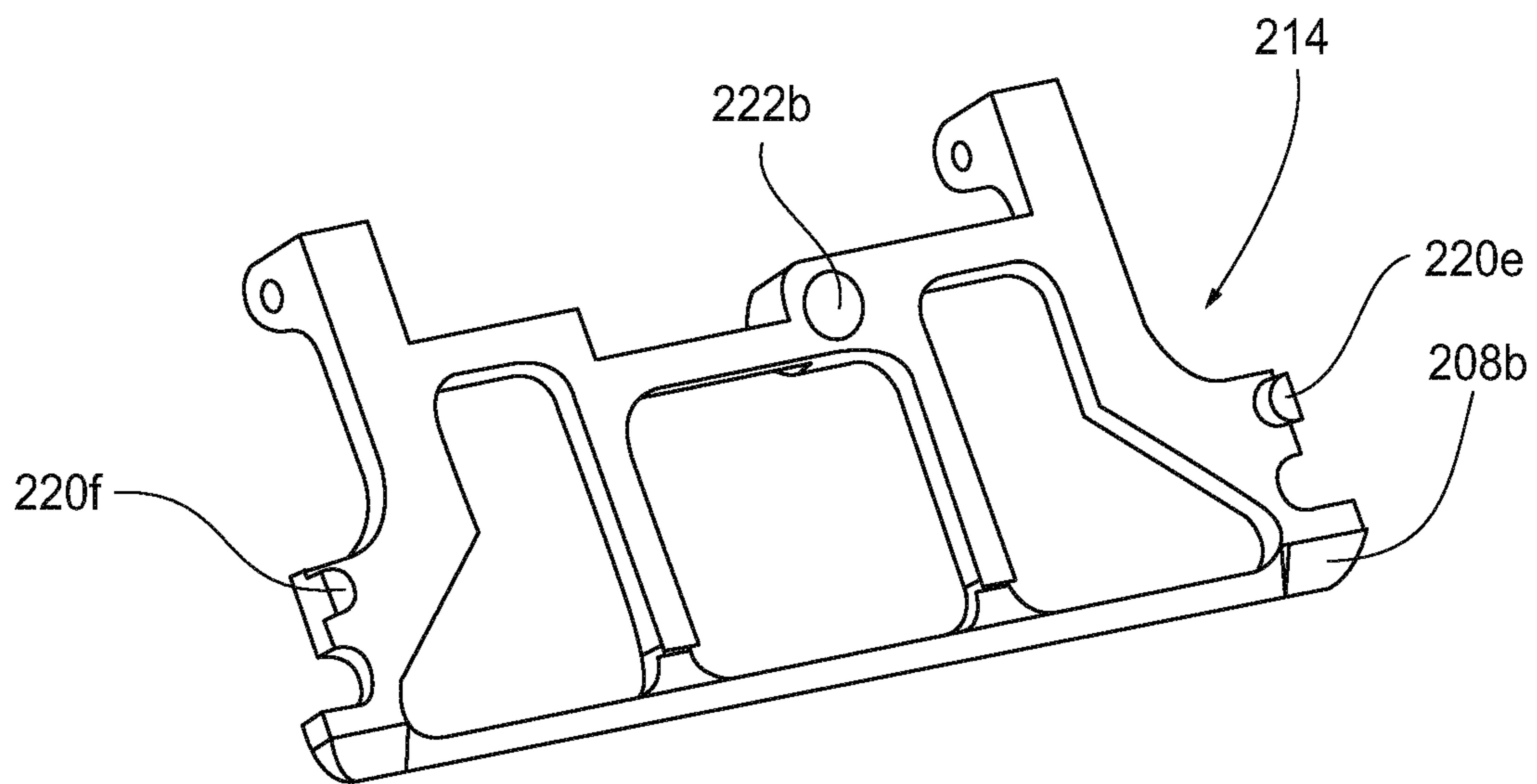


FIG. 39

RAZOR WITH PIVOTING HEAD**CROSS REFERENCE TO RELATED APPLICATION**

This application claims the benefit of U.S. Provisional Patent Application No. 62/082,653, filed Nov. 21, 2014, the disclosure of which is herein incorporated by reference in its entirety.

BACKGROUND OF THE INVENTION**Field of the Invention**

This disclosure relates generally to razors and, more particularly, to a razor with a pivoting head and replaceable blades.

Description of Related Art

Razors have become ubiquitous and are used by both men and women for their personal shaving needs. Straight-blade razors, which are made of high carbon or stainless steel, exemplify the early modern popular style of shaving implements. These razors can be used for many shaving sessions over a longer period of time, but must be maintained by regular sharpening or stropping. The process of sharpening, or honing, the blade uses an abrasive material that removes material from the blade's edge. Stropping, which must be done with each use of a straight-blade razor, straightens and re-aligns the blade, which tends to bend and pit under use preventing a close shave if not straightened.

Double-edged safety razors replaced the straight edge in popularity in the early part of the twentieth century. The disposal of blades after limited use was made popular and economical by the arrival of blades made of low-cost, thin steel, thereby eliminating the need for stropping or honing. The safety feature of these razors, protecting the user from all but the very edge of the blade, appealed to the user. The orientation of the handle and the blade required the user to develop the proper technique to achieve an optimal shave. The next evolution combined the safety of small, thin blades exposed only at the edge with the proper angle-of-attack and a pivoting head to adjust to the contours of the body. The disposable razor embodied the ease and simplicity of shaving, sacrificing longevity of product by providing disposable blades with limited life. This incarnation of men's and women's personal shavers remains the most popular and widely used, contributing a sizeable negative global economic impact.

While the convenience and ease of use of current disposable razor technology is attractive to users, alternative razors using double-edged blades have continued to evolve. Many of the current safety razors use one double-edged blade and clamp the blade to the head of the safety razor to hold it rigidly in place. Typically, one blade edge is exposed on each side of the razor head. Many of these safety razors, however, do not include a pivoting head, thereby requiring a user to hold the razor and blade at a specific angle to his/her face to receive a proper shave. This can lead to a tedious process that does not always provide the close shave that one desires.

SUMMARY OF THE INVENTION

In view of the foregoing, a need exists for a razor including a pivoting head that provides an effective method of replacing the razor blades. A further need exists for a razor

that provides multiple cutting edges on one side of the head by using a single double-edged razor blade. A further need exists for a razor including a pivoting head that provides a secure and easily removable cover for holding the double-edged razor blades.

In accordance with one aspect of the disclosure, a shaving razor may include a handle, a head pivotally attached to the handle, the head may include a frame and a cover pivotally attached to the frame, and at least one razor blade separation member provided between the frame and the cover of the head.

The at least one separation member may be moveable relative to at least one of the frame and the cover of the head. A releasable locking mechanism may be provided on the head and configured to hold the frame and cover together. The releasable locking mechanism may include a thumbscrew, a shaft extending from the thumbscrew and through the frame, the separation member, and the cover, and a threaded portion provided on an end of the shaft opposite the thumbscrew. The threaded portion may be removably threaded into the cover. The releasable locking mechanism may include a release lever, a retaining member extending from the release lever, and at least one spring member positioned on the retaining member. The at least one spring member may create a biasing force on the locking mechanism to keep the locking mechanism in a locked position until the release lever is actuated. The releasable locking mechanism may include at least one magnet positioned on the cover and at least one magnet positioned on the frame. The at least one magnet on the cover may be configured to create a magnetic connection between the at least one magnet on the frame to hold the cover and the frame together in a locked position. At least one razor blade may be provided in the head. The at least one razor blade may include two razor blades positioned on opposing sides of the separation member. A stepped locking abutment may extend from the frame and may be configured to position the at least two razor blades in a stepped arrangement within the head. The razor blades may be removably provided within the head. A dimension of a first gap defined between the at least one separation member and the frame may be different from a dimension of a second gap between the at least one separation member and the cover. At least one magnet may be positioned on the at least one separation member. The at least one separation member may include at least one stop member that extends therefrom, and the frame may include at least one stop member that extends therefrom. The stop members may be configured to retain a razor blade on each of the at least one separation member and the frame. The at least one stop member extending from the frame may be positioned closer to a shaving edge of the shaving razor than the at least one stop member extending from the at least one separation member. The frame may include a shaving edge including an extension member. The extension member may define a recessed portion that lifts a user's hair from his/her skin during shaving.

In accordance with another aspect of the disclosure, a shaving razor may include a handle, and a head pivotally attached to the handle. The head may be configured to receive at least two independently replaceable razor blades.

Each replaceable razor blade may include a blade body that tapers to at least one razor edge. Each replaceable razor blades may be one half of a full razor blade. At least one separation member may be provided between a frame and a cover of the head, such that the replaceable razor blades are receivable on opposing sides of the separation member. The at least one separation member may include at least one stop

member that extends therefrom, and the frame includes at least one stop member that extends therefrom. The stop members may be configured to retain a razor blade on each of the at least one separation member and the frame. The at least one stop member extending from the frame may be positioned closer to a shaving edge of the shaving razor than the at least one stop member extending from the at least one separation member. A dimension of a first gap defined between the at least one separation member and the frame may be different from a dimension of a second gap defined

Further details and advantages will be understood from the following detailed description read in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top perspective view of a razor in accordance with one aspect of the present disclosure;

FIG. 2 is a bottom perspective view of the razor of FIG. 1;

FIG. 3 is a rear perspective view of the razor of FIG. 1;

FIG. 4 is a rear perspective view of a head of the razor of FIG. 1;

FIG. 5 is a side view of a cover of the razor of FIG. 1, without razor blades, provided in an open position;

FIGS. 6-10 are bottom views of the cover of FIG. 3 illustrating a method of replacing razor blades in the razor;

FIGS. 11 and 12 are bottom perspective views of a razor in accordance with another aspect of the present disclosure;

FIG. 13 is a top perspective view of a head of the razor of FIG. 11;

FIG. 14 is a bottom perspective view of the head of the razor of FIG. 11;

FIG. 15 is a side view of the head of the razor of FIG. 11;

FIG. 16 is a front perspective view of the head of the razor of FIG. 11;

FIGS. 17-23 are bottom views of the head of the razor of FIG. 11 illustrating a method of replacing razor blades in the razor;

FIGS. 24-27 are cross-sectional views of the head of the razor of FIG. 11 along line A-A illustrating a method of actuating a locking mechanism on the razor;

FIGS. 28 and 29 are front perspective views of the head of the razor of FIG. 11 including a magnetic locking mechanism;

FIG. 30 is a front perspective view of the head of the razor of FIG. 11 including one razor blade therein;

FIG. 31 is a front perspective view of a double-edged razor blade in accordance with an aspect of the present disclosure;

FIG. 32 is an illustration of a blade configuration that is used in current razors;

FIG. 33 is an illustration of a blade configuration that is used by the razor of FIG. 11;

FIG. 34 is a graphical illustration of the aggressiveness of the razor of FIG. 11 based on the number of blades used and the position of the blades in the razor;

FIG. 35 is a bottom perspective view of a head of a razor according to another embodiment of the present disclosure;

FIG. 36 is a top perspective view of the head of the razor of FIG. 35;

FIG. 37 is a bottom perspective view of the head of the razor of FIG. 35 shown in an open position without razor blades;

FIG. 38 is a top perspective view of a separation member used in the head of the razor of FIG. 35; and

FIG. 39 is a top perspective view of another separation member used in the head of the razor of FIG. 35.

DESCRIPTION OF THE DISCLOSURE

For purposes of the description hereinafter, spatial orientation terms, as used, shall relate to the referenced aspect as it is oriented in the accompanying drawings, figures, or otherwise described in the following detailed description.

However, it is to be understood that the aspects described hereinafter may assume many alternative variations and configurations. It is also to be understood that the specific components, devices, features, and operational sequences illustrated in the accompanying drawings, figures, or otherwise described herein are simply exemplary and should not be considered as limiting.

The present disclosure is directed to, in general, a razor and, in particular, a razor with a pivoting head and replaceable blades. Certain preferred and non-limiting aspects of the components of the razor are illustrated in FIGS. 1-31, 33, and 34.

With reference to FIGS. 1-4, one aspect of a shaving razor 2 is described. The razor 2 may include a handle 4 and a head 6. In one aspect, the head 6 may be pivotable or rotatable relative to or about the handle 4, as described hereinbelow. The head 6 may have a substantially rectangular shape. In one aspect, the handle 4 may have a substantially triangular cross-sectional shape. However, it is also contemplated that alternative shapes may be used, such as circular, oval, square, or trapezoidal. The handle 4 may include a first extension member 8a and a second extension member 8b. The first and second extension members 8a, 8b may extend from a distal end of the handle 4. The distal end of the handle 4 may be understood to be the end of the handle 4 that is not held by a user during use of the razor 2. The first and second extension members 8a, 8b may define an aperture 10 therebetween. It is also contemplated that the aperture 10 may not be defined by the first and second extension members 8a, 8b, and the handle 4 may be formed as a single monolithic structure. The handle 4 may include different types of surfaces, including small protrusions, bumps, waves, or indentations, to provide a comforting ergonomic feel when held by an individual.

With reference to FIGS. 3 and 4, the head 6 may be positioned on the distal ends of the first and second extension members 8a, 8b. In one aspect, the head 6 may be attached to the first and second extension members 8a, 8b by pins 12a, 12b. The pins 12a, 12b may be provided in apertures defined in the distal ends of the first and second extension members 8a, 8b and may allow the head 6 to freely rotate and/or pivot about the handle 4. In one aspect, separate pins 12a, 12b may be inserted through each extension member 8a, 8b. In another aspect, one pin may be inserted through both extension members 8a, 8b. By permitting rotation or pivoting of the head 6 relative to the handle 4, the razor 2 may be configured to set the blade and/or blades at the correct angle when pressure is applied to an individual's face. It is also contemplated that the head 6 may be spring-loaded on the handle 4 so the head 6 is returned to a resting position after being rotated relative to the handle 4.

With reference to FIGS. 1-4, the head 6 may include a frame 14 and a cover 16. The frame 14 may be attached to the first and second extension members 8a, 8b via the pins 12a, 12b. By connecting the frame 14 to the extension members 8a, 8b via the pins 12a, 12b, the frame 14 may also be rotated and/or pivoted about the handle 4. The frame 14

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and cover 16 may be configured to hold together two blades 18a, 18b in the head 6. It is also contemplated that the frame 14 and cover 16 may hold one blade or more than two blades in the head 6. In one aspect, the blades 18a, 18b may be formed from a double-edged razor blade. An example of such a double-edge razor blade 18a is shown in FIG. 31. As used herein, the “shaving edge” or like terms of the razors of the present invention refers to a leading surface or portion of the head 6, such that, when in use, the shaving edge is followed by the exposed razor edges 18a' that contact a user's skin. Typically, double-edged razor blades include two opposing razor edges 18a' connected by a weak or thin body member 18a'' that defines perimeter profile portions 18a''' and a profiled cut-out 18a'''. Razor blade 18a is shown as a conventional double-edged blade, but this is not meant to be limiting. It should be appreciated that razor edge 18a' of razor blade 18a includes an outermost edge for contacting skin with the razor edge 18a' tapering from the razor body 18a''. Other embodiments of razor blades (single-edged and double-edged) with various perimeter profiles and/or central cut-out profiles are encompassed within the present invention. Presently, many manufacturers make these types of double-edged razor blades that use a standardized shape to fit in traditional safety razors. In one aspect, the blades 18a, 18b of the razor 2 may be this type of double-edged blade. By “weak and thin”, it is meant that the blades are typically designed so that an individual can break a double-edged razor blade in half by hand, splitting along a centerline of profile cut-out 18a'''. By breaking the double-edged razor blades in half, two “half blades” or two halves of the double-edged razor blade are provided. Each half may include one razor edge. It is also to be understood that the “half blades” may be provided in this initial form, without the need for breaking a double-edged razor blade in half. By using the “half blades” in the head 6, the razor 2 may provide a multi-razor blade configuration for shaving an individual's face. While it is contemplated that any type of double-edged razor blade may be used with the razor 2, it is also contemplated that specific “half blades” may be designed and configured to custom fit in the frame 14 and cover 16 of the head 6.

As shown in FIG. 5, the frame 14 may be connected to the cover 16 via another pin 20. In this configuration, the cover 16 may be rotatable and/or pivotable about the pin 20 and thereby the frame 14. In this aspect, the cover 16 may not be removable from the head 6 so that the cover 16 is not lost or damaged. It is also contemplated, however, that the cover 16 may be fully removable from the head 6. The cover 16 may be configured in at least two positions, including an open position and a closed position. In the open position, the cover 16 may be rotated relative to the frame 14 to allow for the removal and replacement of the blades 18a, 18b in the head 6. In the closed position, the cover 16 may be positioned on top of the frame 14 to retain the blades 18a, 18b in the head 6. A separation member 22 may also be provided in the head 6. The separation member 22 may be configured to separate the blades 18a, 18b from each other in the head 6. In one aspect, the separation member 22 may be positioned between the blades 18a, 18b when the blades 18a, 18b are retained in the head 6. The separation member 22 may be rotatably attached to the pin 20 and positioned within and between the frame 14 and cover 16. The separation member 22 may be rotatable and/or pivotable relative to the frame 14 and cover 16. As shown in FIG. 6, a bottom blade seat 32 may protrude or extend from a top surface of the frame 14. The bottom blade seat 32 may be an integral extension of the frame 14 so that the bottom blade seat 32

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is rotatable about the handle 4. It is also contemplated that the bottom blade seat 32 may be a separate component from the frame 14, which is separately rotatable about the handle 4. The bottom blade seat 32 may define at least two angled surfaces 33a, 33b that may be configured to effectively direct water flow through the head 2 during cleaning of the razor 2.

With reference to FIGS. 1-10, the razor 2 may also include several components to assist in the insertion and retention of the blades 18a, 18b in the head 6. As best shown in FIGS. 6 and 7, at least two stop members 19a, 19b may extend from the frame 14. The stop members 19a, 19b may be configured to permit the bottom blade 18a to rest on the stop members 19a, 19b so the blade 18a cannot slide in a downward direction out of the frame 14. The stop members 19a, 19b may also assist in stopping the blade 18a from moving in a left-right lateral direction. Further, another stop member 19c may be provided on an upper peripheral edge of the frame 14. The stop member 19c may extend from the frame 14 and may define a semi-circular shape. The stop member 19c may be configured to fit within a groove on a top portion of the blade 18a. When the blade 18a is positioned against the stop member 19c, the blade 18a may not move in an upward direction relative to the frame 14. Therefore, by retaining the blade 18a within the stop members 19a-19c, the blade 18a may be properly aligned in the head 2.

As shown in FIGS. 8 and 9, the separation member 22 also includes at least two stop members 23a, 23b to ensure that the top blade 18b is properly aligned on the separation member 22. The stop members 23a, 23b may extend from outer edges of the separation member 22. The stop members 23a, 23b may be configured to permit the blade 18b to rest on the stop members 23a, 23b so the blade 18b cannot slide in a downward direction out of the frame 14. The stop members 23a, 23b may be positioned upwardly from the stop members 19a, 19b. The stop members 23a, 23b may also assist in stopping the blade 18b from moving in a left-right lateral direction in the frame 14. The separation member 22 may also include a back edge 23c that assists in keeping the blade 18b from moving in an upward direction relative to the frame 14. Once the blade 18b has been positioned on the separation member 22, the blade 18b may abut the back edge 23c, thereby retaining the blade 18b in the head 2. Therefore, by retaining the blade 18b between the stop members 23a, 23b and the back edge 23c, the blade 18b may be properly aligned in the head 2.

With reference to FIGS. 1-5, a locking mechanism 24 for the razor 2 is described. After the blades 18a, 18b have been provided in the frame 14, as will be described in more detail hereinbelow, the cover 16 may be rotated and/or pivoted to the closed position to retain the blades 18a, 18b in the head 6. After the cover 16 has been moved to the closed position, the locking mechanism 24 may be used to lock and/or tighten the cover 16 to the frame 14 to hold the blades 18a, 18b therein. In one aspect, the locking mechanism 24 may include a thumbscrew 26, a shaft 28 extending from the thumbscrew 26, and a threaded portion 30 provided on one end of the shaft 28. The threaded portion 30 may be provided on one end of the shaft 28, while the thumbscrew 26 is provided on an opposing end of the shaft 28. The thumbscrew 26 may be positioned on a top surface of the frame 14. In one aspect, the top surface of the frame 14 is understood to be the surface of the frame 14 that is opposite the surface of the frame 14 that holds the blades 18a, 18b. The thumbscrew 26 may be rotated in one direction to tighten the cover 16 to the frame 14, and rotated in an opposite direction to

loosen the cover 16 from the frame 14. The shaft 28 may extend from the thumbscrew 26 and through corresponding apertures defined in the frame 14, the separation member 22, and the cover 16. The threaded portion 30 may be threaded into a threaded aperture defined in the cover 16 to hold the thumbscrew 28 in place and assist in retaining the blades 18a, 18b in the head 6. As the thumbscrew 28 is tightened, the blades 18a, 18b are sandwiched in between the frame 14 and the cover 16 with the separation member 22 therebetween. In one aspect, the thumbscrew 28 may be captive or auto-retained in the head 6 so that the thumbscrew 28 cannot fall out of the head 6 even if the thumbscrew 28 is screwed the entire way out. It is also contemplated that alternative locking mechanisms may be used to retain the blades 18a, 18b in the head 6, including a snap-fit arrangement or a clamping mechanism, among other locking mechanisms that could hold the frame 14 and cover 16 together. In another aspect, a magnetic locking mechanism may be used with the razor 2 to hold the frame 14 and cover 16 to one another. The magnetic locking mechanism is described in greater detail hereinbelow with reference to the razor 100 of FIG. 11.

With reference to FIGS. 5-10, a method of using the razor 2 is described in detail. The razor 2 may be configured to allow replacement of the blades 18a, 18b after the blades 18a, 18b have become dull due to extended use of the razor 2. It is also contemplated that the blades 18a, 18b may be replaced at any desired time by the individual regardless of the wear on the blades 18a, 18b. FIGS. 4-9 illustrate a method of inserting the blades 18a, 18b into the head 6 for the first time or replacing the blades 18a, 18b. It is also to be understood that this same method may be used to replace old blades with new blades as well. In this method, the old blades must first be removed from the head 6 before the new blades 18a, 18b are inserted into the head 6.

As shown in FIG. 6, the cover 16 and separation member 22 of the head 6 may be positioned in the open position. The cover 16 and the separation member 22 may be rotated relative to the frame 14 to expose an inner portion of the head 6 in which the blades 18a, 18b will be inserted. In one aspect, the bottom blade seat 32 is exposed in the head 6. The bottom blade seat 32 may be provided on the frame 14 of the head 6. In a second step shown in FIG. 7, a first blade 18a may be positioned on the bottom blade seat 32. The razor edge of the first blade 18a may be positioned to extend from the cover 6 to provide a cutting surface for shaving an individual's face or other body part. In one aspect, the first blade 18a may be a "half blade" created from a full double-edged razor blade, as described above.

As shown in FIG. 8, after the first blade 18a has been positioned on the bottom blade seat 32, the separation member 22 may be rotated relative to the frame 14 to sit on or be positioned over the first blade 18a. After the separation member 22 has been rotated down to a position over the first blade 18a, a top blade seat 34 may be provided on a top surface of the separation member 22. The top blade seat 34 may be configured to receive the second blade 18b. As shown in FIG. 9, the second blade 18b may be positioned on the top blade seat 34. The razor edge of the second blade 18b may extend from the head 6 similar to the first blade 18a to provide a cutting surface for shaving an individual's face or body part. In one aspect, the second blade 18b may be the other "half blade" created from the full double-edged razor blade that also provided the first blade 18a.

As shown in FIG. 9, after the second blade 18b has been positioned on the top blade seat 34, the cover 16 may be rotated relative to the frame 14 to place the cover 16 in the closed position. In this closed position, the cover 16 may be

positioned over the second blade 18b to enclose the blades 18a, 18b in the head 6. The thumbscrew 28 may then be rotated in a first direction to provide a clamping or "sandwiching" effect on the blades 18a, 18b. The threaded portion 30 of the locking mechanism 24 may rotate into the threaded aperture in the cover 16, thereby clamping or compressing all of the elements inside of the head 6. In one aspect, as the threaded portion 30 is inserted further into the threaded aperture of the cover 16, the tighter the blades 18a, 18b and separation member 22 are compressed together. As the blades 18a, 18b and the separation member 22 are tightened even further, a secure blade arrangement may be provided in the head 6 so that the blades 18a, 18b do not move within the head 6 during shaving.

In a similar manner, after the thumbscrew 28 has been tightened to a closed position and the cover 6 needs to be opened, the thumbscrew 28 may be rotated in an opposite direction to loosen the clamping force on the blades 18a, 18b and the separation member 22. As the thumbscrew 28 is rotated in the opposite direction, the threaded portion 30 may be withdrawn or removed from the threaded aperture in the cover 16, thereby loosening the clamping effect on the blades 18a, 18b and the separation member 22. After the thumbscrew 28 is rotated a sufficient amount, the threaded portion 30 is completely removed from the threaded aperture of the cover 16 allowing the cover 16 to once again rotate relative to the frame 14. Even though the threaded portion 30 may be completely removed from the cover 16, the thumbscrew may still be retained in the frame 14 so that the thumbscrew 28 does not fall out during operation of the razor 2. It is to be understood that once the blades 18a, 18b become dull or new blades are desired, this process may be reversed to open the cover 16 and replace the old blades 18a, 18b. It is also to be understood that this method may be used with just one razor blade that rests on either the bottom blade seat 32 or the top blade seat 34. It is further contemplated that more than one razor blade may be positioned on each of the bottom and top blade seats 32, 34. The number and position of the blades 18a, 18b may be provided in different configurations to adjust the aggressiveness of the razor 2. For example, for individuals with sensitive skin, a razor 2 with one blade 18a may be used to provide a gentler shave. In contrast, for individuals with thicker hair, the razor 2 may be provided with two blades 18a, 18b to provide a more aggressive shave. It is also contemplated that the position of the blades 18a, 18b in the head 6 may be altered so a gap between the blade edge and the bottom of the frame 14 may be altered, as well. This gap affects the aggressiveness of the shave against an individual's skin since it defines how much of the individual's skin is exposed to the blade edge. Therefore, if the individual moves a single blade 18a to an upper position in the razor head 6, the gap increases thereby exposing a larger area of the individual's skin to the razor edge between the razor edge and the lower edge of the frame 14. Likewise, an individual may place the single blade 18a at an intermediate position in the head 6 to provide a less aggressive shave.

One advantage of using the razor 2 is the reduced cost of the blades 18a, 18b as compared to typical disposable razors. The total cost of new double-edged razor blades is significantly less than the cost of cartridge razors or entire disposable razors. By using the razor 2 with the blades 18a, 18b, there is also less waste and no disposal of plastic from the razor 2 in the garbage. The geometry of the razor 2 and the ease of opening the cover 16 of the head 6 allow for easy and effective rinsing and cleaning of the razor 2. Any hair or debris clogged in the head 6 is easily removed and cleaned.

With reference to FIGS. 11-27, another aspect of a shaving razor 100 is described. The razor 100 may include a handle 102 and a head 104. In one aspect, the head 104 may be pivotable or rotatable relative to or about the handle 102, as described hereinbelow. The head 104 may have a substantially rectangular shape. In one aspect, the handle 102 may have a substantially triangular cross-sectional shape. However, it is also contemplated that alternative shapes may be used, such as circular, oval, square, or trapezoidal. The handle 102 may include a first extension member 106a and a second extension member 106b. The first and second extension members 106a, 106b may extend from a distal end of the handle 102. The distal end of the handle 102 may be understood to be the end of the handle 102 that is not held by a user during use of the razor 100. The first and second extension members 106a, 106b may define an aperture 108 therebetween. It is also contemplated that the aperture 108 may not be defined by the first and second extension members 106a, 106b and, instead, the handle 102 may be formed as a single, monolithic structure. The handle 102 may include a plurality of grooves 110 on an outer surface of the handle 102. The grooves 110 are configured to assist a user in holding the razor 100 so as not to drop or fumble the razor 100 during use. In one aspect, the grooves 110 may be square or rectangular in shape. It is also contemplated that additional or alternative shapes may be used for the grooves 110. It is also contemplated that the grooves 110 may be replaced or used with protrusions or bumps (not shown) on the handle 102. The handle 102 may also include different textured surfaces, as well, such as a knurled surface or a rubber coating to provide a better grip for the individual using the razor 2.

With reference to FIGS. 11, 13, and 15, the head 104 may be positioned on the distal ends of the first and second extension members 106a, 106b. In one aspect, the head 104 may be rotatably attached to the first and second extension members 106a, 106b by pins 112a, 112b. The pins 112a, 112b may be provided in apertures defined in the distal ends of the first and second extension members 106a, 106b and may allow the head 104 to freely rotate and/or pivot about the handle 102. In one aspect, separate pins 112a, 112b may be inserted through each respective extension member 106a, 106b. In another aspect, one pin may be inserted through both extension members 106a, 106b. By permitting rotation or pivoting of the head 104 relative to the handle 102, the razor 100 may be configured to set the blade and/or blades at a correct angle when pressure is applied to an individual's face or body. It is also contemplated that the head 104 may be spring-loaded on the handle 102 so the head 104 is returned to a resting position after being rotated relative to the handle 102.

With reference to FIGS. 11-16, the head 104 may include a frame 114 and a cover 116. The frame 114 may be attached to the first and second extension members 106a, 106b via the pins 112a, 112b. By connecting the frame 114 to the extension members 106a, 106b via the pins 112a, 112b, the frame 114 may also be rotated and/or pivoted about the handle 102. The frame 114 and cover 116 may be configured to hold together at least three blades 118a, 118b, 118c in the head 104. It is also contemplated that the frame 114 and cover 116 may hold one blade, two blades, or more than three blades in the head 104. In one aspect, the blades 118a, 118b, 118c may be formed from a double-edged razor blade. Typically, double-edged razor blades include two opposing razor edges connected by a weak or thin body member. The blades are typically designed so that an individual can break each double-edged razor blade in half by hand. By breaking the

double-edged razor blades in half, two "half blades" or two halves of the double-edged razor blade are provided. Each half may include one razor edge. It is also to be understood that the "half blades" may be provided in this initial form, without the need for breaking a double-edged razor blade in half. By using the "half blades" in the head 104, the razor 100 may provide a multi-razor blade configuration for shaving an individual's face. While it is contemplated that any type of double-edged razor blade may be used with the razor 100, it is also contemplated that specific "half blades" may be designed and configured to custom fit in the frame 114 and cover 116 of the head 104. As shown in FIGS. 24-27, the blades 118a, 118b, 118c may be arranged in a stepped arrangement within the head 104.

As shown in FIGS. 13 and 15, the frame 114 may be rotatably connected to the cover 116 via pins 120a, 120b. In this configuration, the cover 116 may be rotatable and/or pivotable about the pins 120a, 120b and thereby the frame 114. It is also contemplated that a single pin may be used to rotatably connect the frame 114 to the cover 116. In this aspect, the cover 116 may not be removable from the head 104 so that the cover 116 is not lost or damaged. It is also contemplated, however, that the cover 116 may be fully removable from the head 104. The cover 116 may be configured in at least two positions, including an open position and a closed position. In the open position, the cover 116 may be rotated relative to the frame 114 to allow for the removal and replacement of the blades 118a, 118b, 118c in the head 104. In the closed position, the cover 116 may be positioned on top of the frame 114 to retain the blades 118a, 118b, 118c in the head 104.

At least two separation members 122a, 122b may also be provided in the head 104. The separation members 122a, 122b may be configured to separate the blades 118a, 118b, 118c from each other in the head 104. In one aspect, the separation members 122a, 122b may be positioned between the blades 118a, 118b, 118c when the blades 118a, 118b, 118c are retained in the head 104. One separation member 122a may be positioned between two blades 118a, 118b, and another separation member 122b may be positioned between two blades 118b, 118c. The separation members 122a, 122b may be rotatably attached to the corresponding pins 120a, 120b, respectively, and positioned within and between the frame 114 and cover 116. The separation members 122a, 122b may be rotatable and/or pivotable relative to the frame 114 and cover 116. As shown in FIG. 30, it is also contemplated that the razor 100 may include one blade 118a positioned between the frame 114 and the cover 116. In this aspect, the cover 116 may be rotatably connected to the frame 114. The blade 118a may be configured to rest on a stop member 113a, which is described in greater detail hereinbelow.

The separation members 122a, 122b of this aspect of the razor 100 may utilize minimal material as compared to the separation member 22 of the razor 2 shown in FIGS. 1-10, so as to assist in the cleaning and maintenance of the razor 100. It is also contemplated that additional extension members or portions may be provided with the separation members 122a, 122b to provide additional support for the blades 118a, 118b. The additional extension members include portions that extend from the separation members 122a, 122b or additional material used on the body of the separation members 122a, 122b. Instead of the separation members 122a, 122b substantially covering the blades 118a, 118b, 118c as with the separation member 22 of the razor 2 shown in FIGS. 1-10, the separation members 122a, 122b define several openings or spaces to allow water to flow through the

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head 104 of the razor 100. As shown in FIG. 19, water may flow through and rinse the separation member 122a and the blade 118a through fluid openings 134a-f defined between the separation member 122a and the blade 118a. Similarly, as shown in FIG. 21, water may also flow through and rinse the other separation member 122b and another blade 118b through fluid openings 136a-d defined between the separation member 122b and the blade 118b. As shown in FIG. 17, a bottom blade seat 124 may protrude or extend from a top surface of the frame 114. The bottom blade seat 124 may be an integral extension of the frame 14 so that the bottom blade seat 124 is rotatable about the handle 102. It is also contemplated that the bottom blade seat 124 is a separate member that is rotatably connected to the handle 102 via the pins 120a, 120b. The bottom blade seat 124 may also define at least two angled edges 127a, 127b that assist in directing the water flow through head 104 of the razor 100 during washing of the razor 100.

Similar to the frame 14 in FIGS. 1-10, the frame 114 may include stop members 113a, 113b to assist in retaining the blade 118a in the head 2. Similarly, the separation member 122a may include stop members 123a, 123b to assist in retaining the blade 118b in the head 2. The separation member 122b may include stop members 123c, 123d to assist in retaining the blade 118c in the head 2. The stop members 123a-123d of the separation members 122a, 122b may be positioned above the stop members 113a, 113b of the frame 114 so, as the blades 118a-118c sit on the stop members 113a, 113b, 123a-123d, the blades 118a-118c may be arranged in a staggered, stepped arrangement.

As shown in FIGS. 15 and 24-27, the frame 114 may also include a stepped locking abutment 125 that the blades 118a-118c may abut when inserted into the head 104 of the razor 100. The locking abutment 125 may be configured to stop the blades 118a-118c from moving in an upward direction relative to the frame 114. The locking abutment 125 may include at least three steps corresponding to the blades 118a-118c in the head 104. It is contemplated that the locking abutment 125 may include an equal number of steps as blades in the head 104. As shown in FIGS. 24-27, a portion of each blade 118a-118c may rest on a corresponding step of the locking abutment 125.

With reference to FIGS. 12-15 and 24-27, a locking mechanism 126 for the razor 100 is described. After the blades 118a, 118b, 118c have been provided in the frame 114, as will be described in more detail hereinbelow, the cover 116 may be rotated and/or pivoted to the closed position to retain the blades 118a, 118b, 118c in the head 104. After the cover 116 has been moved to the closed position, the locking mechanism 126 may be used to lock and/or tighten the cover 116 to the frame 114 to hold the blades 118a, 118b, 118c therein. In one aspect, the locking mechanism 126 may include a release lever 128, a retaining member 130 extending from the release lever 128, and at least two spring members 132a, 132b provided on the retaining member 130. The release lever 128 may be rotatable and/or pivotable about the cover 116. The release lever 128 may be actuated by an individual to rotate the release lever 128 relative to the cover 116. As shown in FIG. 24, in a closed or locked position, the release lever 128 holds the retaining member 130 against the cover 116. In one aspect, the release lever 128 may hold the retaining member 130 against a portion of the frame 114 at point A (FIGS. 24-27) to effect a clamping effect on the frame 114 via the cover 116. The portion of the frame 114 located at point A includes an inclined surface that assists in keeping the retaining member 130 in a locked position, thereby keeping the cover

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116 in a locked position. When in the closed or locked position, the locking mechanism 126 prevents the cover 116 from rotating relative to the frame 114. Upon the blades 118a, 118b, 118c becoming dull or needing replacement, the locking mechanism 126 may be actuated to allow the cover 116 to rotate relative to the frame 114, thereby exposing the blades 118a, 118b, 118c in the head 104. As shown in FIG. 25, to actuate the locking mechanism 126 an individual may press downwards on the release lever 128 to release the retaining member 130 from a resting position. The retaining member 130 is rotated relative to the frame 114 to release the holding force on the cover 116, thereby allowing the cover 116 to rotate. As shown in FIGS. 26 and 27, the cover 116 may be opened to allow the individual to remove the dull blades 118a, 118b, 118c and replace them with new blades, as will be described in further detail below. As the release lever 128 is pushed downwards, a biasing force is created by the spring members 132a, 132b. In one aspect, the spring members 132a, 132b may be leaf springs. As the cover 116 is rotated further from the frame 114, the spring members 132a, 132b create a larger biasing force. In one aspect, the biasing force is configured to restore the locking mechanism 126 to a resting position after the individual releases pressure on the release lever 128. In one aspect, this resting position may correspond to the locking position of the locking mechanism 126. It is also contemplated that alternative locking mechanisms may be used to retain the blades 118a, 118b, 118c in the head 104, including a snap-fit arrangement or a clamping mechanism, among other locking mechanisms that could hold the frame 114 and cover 116 together.

As shown in FIGS. 28 and 29, it is also contemplated that a magnetic locking mechanism may also be used with the razor 100 to create a clamping effect between the frame 114 and the cover 116. The magnetic locking mechanism may include at least one magnet 138c, 138d provided on or in the frame 114 and a corresponding at least one magnet 138a, 138b provided on or in the cover 116. By creating a magnetic force between the magnets 138a-d, the frame 114 and cover 116 may be clamped together. The cover 116 may be opened by applying a sufficient force to overcome the magnetic connection between the magnets 138a-d, thereby exposing the blades 118a, 118b, 118c in the head 104 and allowing an individual to replace the blades 118a, 118b, 118c in the razor 100, as will be described hereinbelow. It is also contemplated that the bottom blade seat 124 may include at least one magnet 138e, 138f to assist in the placement of the bottom blade 118a in the razor 100. The blade 118a may be slightly magnetic so the blade 118a may be magnetically connected to the bottom blade seat 124 but may also slide within the frame 114 until the blade 118a is properly positioned. The magnetic bottom blade seat 124 may assist in retaining the blade 118a against the frame 114 until the blade 118a is properly positioned. It is also contemplated that magnets 138g-i may be provided on the separation members 122a, 122b to assist in clamping the frame 114 to the cover 116, and to assist in retaining the blades 118a, 118b, 118c, which may be slightly magnetic, against the separation members 122a, 122b. It is to be understood that any number of magnets may be used with the razor 100 to effect a desired clamping force on the head 104. It is also to be understood that the magnets may also be used with the razor 2 shown in FIG. 1. In one aspect, the magnets 138a-i may be cylindrical in shape to fit within cylindrical recesses in the head 104. However, the magnets 138a-i may be of any size or shape. It is also contemplated that the magnets 138a-i may be positioned at different locations on the frame 114,

cover **116**, bottom blade seat **124**, and separation members **122a**, **122b**. The blades **118a-c** may be made from a stainless steel type of material. In one aspect, the blades **118a-c** may be inherently magnetic and used to clamp the blades **118a-c** to the frame **114**, separation members **122a**, **122b**, and the cover **116** (which may be made of a magnetic stainless steel type of material), thereby eliminating the need to place magnets on the frame **114** or cover **116**.

With reference to FIGS. **17-23**, a method of using the razor **100** is described in detail. The razor **100** may be configured to allow replacement of the blades **118a**, **118b**, **118c** after the blades **118a**, **118b**, **118c** have become dull due to extended use of the razor **100**. It is also contemplated that the blades **118a**, **118b**, **118c** may be replaced at any desired time by the individual regardless of the wear on the blades **118a**, **118b**, **118c**. FIGS. **17-23** illustrate a method of inserting the blades **118a**, **118b**, **118c** into the head **104** for the first time or replacing the blades **118a**, **118b**, **118c**. It is also to be understood that this same method may be used to replace old blades with new blades, as well. In this method, the old blades must first be removed from the head **104** before the new blades **118a**, **118b**, **118c** are inserted into the head **104**.

As shown in FIG. **17**, the cover **116** and a separation member **122a** of the head **104** may be positioned in the open position. The cover **116** and the separation member **122a** may be rotated relative to the frame **114** to expose an inner portion of the head **104** in which the blades **118a**, **118b**, **118c** will be inserted. In one aspect, the bottom blade seat **124** is exposed in the head **104**. The bottom blade seat **124** may be provided on the frame **114** of the head **104**. In a second step shown in FIG. **18**, a first blade **118a** may be positioned on the bottom blade seat **124**. The razor edge of the first blade **118a** may be positioned to extend from the cover **104** to provide a cutting surface for shaving an individual's face or other body part. In one aspect, the first blade **118a** may be a "half blade" created from a full double-edged razor blade, as described above.

As shown in FIG. **19**, after the first blade **118a** has been positioned on the bottom blade seat **124**, the separation member **122a** may be rotated relative to the frame **114** to sit on or be positioned over the first blade **118a**. As shown in FIG. **20**, the second blade **118b** may be positioned on a top surface of the separation member **122a**. The razor edge of the second blade **118b** may extend from the head **104** similar to the first blade **118a** to provide a cutting surface for shaving an individual's face or body part. In one aspect, the second blade **118b** may be the other "half blade" created from the full double-edged razor blade that also provided the first blade **118a**. As shown in FIG. **21**, the other separation member **122b** may be rotated downwards to rest on top of the second blade **118b**. Subsequently, as shown in FIG. **22**, the third blade **118c** may be placed on a top surface of the separation member **122b**.

After all of the blades **118a**, **118b**, **118c** have been inserted in the head **104**, the cover **116** may be rotated relative to the frame **114** to close the head **104** of the razor **100**. As the cover **116** is rotated, the locking mechanism **126** is snapped into place. In this step of the method, the retaining member **130** is held against the top blade **118c** of the head **104** to compress or clamp the blades **118a**, **118b**, **118c** and the separation members **122a**, **122b** between the cover **116** and the frame **114**. Since the locking mechanism **126** is spring-loaded into the locked position, the locking mechanism **126** clamps the cover **116** to the frame **114** until an individual actuates the release lever **128** to open the cover **116** as described hereinabove.

As described with reference to FIGS. **32-34**, the aggressiveness of the razor **100** may be adjusted according to the preferences of the user. The aggressiveness of a razor is understood to be the configuration of how the blade is positioned relative to the geometry of the razor, which affects how the blade interacts and contacts the user's skin. Current razor blade configurations provided in current razors (shown schematically in FIG. **32**) do not allow for adjustment of the aggressiveness of the razor. Typically, a blade guard is provided in front of the blade in the shave direction of the razor. A gap is formed between the blade guard and the blade, which affects the exposure of the blade to the user's skin. The exposure of the blade is understood to be the distance the blade protrudes into the shave surface or user's skin. When the blade exposure is high, the aggressiveness of the razor is high, which gives the user a closer shave. When the blade exposure is low, the aggressiveness of the razor is also low and the shaving process is safer but the shave is not as close to the user's skin. Therefore, the aggressiveness of the razor is determined by the exposure of the blade and the gap between the blade and the blade guard. A razor with a smaller the gap and less exposure of the blade is considered to provide a less aggressive shave. With a low aggressiveness, the razor is less effective at cutting longer hair but there may be reduced irritation against the grain when shaving and there is a lower chance of cutting the user's skin during shaving as compared to more aggressive razors. Razors with a large gap and greater exposure of the blade exhibit higher aggressiveness of shaving. With high aggressiveness, the razor can cut longer hair, however, more irritation can be experienced against the grain when shaving and the chance of cutting the user's skin during shaving is greater.

With reference to FIGS. **33** and **34**, the aggressiveness of the razor **100** described herein may be adjusted by the user according to his/her skin condition and/or preferences for shaving. The razor **100** provides at least three different blade positions for the user to choose from to adjust the aggressiveness of the razor **100**. Depending on the number of blades and the position of the blades within the razor **100**, the user can customize a preference level of aggressiveness. As schematically shown in FIG. **33**, at the first blade position, the first blade **118a** is positioned away from the frame **114** (also considered a first blade guard for this discussion). In the first blade position, a maximum exposure of the blade **118a** and a maximum gap are provided between the first blade **118a** and the first blade guard. In the second blade position, the second blade **118b** (also considered a second blade guard for this discussion) is positioned closer to the first separation member **122a** than the first blade **118a** is positioned relative to the frame **114**. Therefore, in the second blade position, a medium or intermediate exposure of the blade **118b** and a medium or intermediate gap are provided between the second blade **118b** and the second blade guard. In the third blade position, the third blade **118c** is positioned proximate the second separation member **122b** (also considered a third blade guard for this discussion), which is closer than the first blade **118a** and second blade **118b** are positioned relative to the frame **114** and the first separation member **122a**, respectively. Therefore, in the third blade position, a minimum or low exposure of the blade **118c** and a minimum or low gap are provided between the second blade **118c** and the third blade guard.

By providing this blade aggressiveness adjustment feature on the razor **100**, the user may configure the razor **100** to his/her specific preferences. With reference to FIG. **34**, the aggressiveness of the razor **100** may be adjusted based on the number and position of the blades **118a-118c** in the razor

100. For a high aggressiveness, all three blades **118a-118c** may be used in the razor **100**. For an intermediate aggressiveness of the razor **100**, two blades may be used in the razor **100**. For example, the first and second blades **118a**, **118b** may be provided in the razor **100** or the second and third blades **118b**, **118c** may be provided in the razor **100**. For a low aggressiveness of the razor **100**, only one of the blades **118a**, **118b**, or **118c** may be provided in the razor **100**. It is also to be understood that the aggressiveness of the razor **2** illustrated in FIGS. **1-10** may also be adjusted in a similar manner as described above.

With reference to FIGS. **35-39**, another aspect of the razor head **200** is described. This aspect of the razor head **200** is configured and operates in substantially the same way as the razor heads **6**, **104** described above but with several differences that are described below. In this aspect, the cover **202** is configured to cover each razor blade that is used in the razor head **200**. The cover **202** is wider (as measured along the longest dimension of the cover **202**) than the razor blades used in the razor head **200** so that the razor blades are fully enclosed within the razor head **200** and not exposed to the user, as compared to the razor blades **18a**, **18b**, **118a-118c** of the razors **2**, **100** that may extend outside of the respective covers **16**, **116**. Another feature of this aspect of the razor head **200** is the shaving edge includes an extension member **204**. The extension member **204** defines a recessed portion **206** that provides a surface on the razor head **200** that pulls the user's hair up and away from the user's face or body part prior to the razor blades cutting the user's hair. By raising the user's hair up and away from the user's skin surface, the razor blades cut closer to the user's skin to provide a smoother shave for the individual. As shown in FIG. **35**, the recessed portion **206** may extend across substantially the entire width of the extension member **204**. In another aspect, the recessed portion **206** may only extend across a portion of the extension member **204**. In another aspect, several recessed portions **206** may be spaced out across the width of the extension member **204**. This aspect of the razor head **200** also includes elongated stop members **208a-208c** to provide a protection structure which may cover the corners of the razor blades. Elongated stop members **208a-208c** protect the corners of the razor blades within the razor head **200**, which keeps the corners from scratching or cutting the user.

As shown in FIG. **36**, this aspect of the razor head **200** utilizes a thumbscrew **210** to create a clamping force on the cover **202** to hold the razor blades within the razor head **200**. The thumbscrew **210** is positioned and operates in the same manner as the thumbscrew **26** described above. In this aspect of the razor head **200**, however, the threaded portion **218** of the thumbscrew **210** is threaded along the entire length of the thumbscrew **210** (shown in FIG. **37**). As shown in FIGS. **37-39**, this aspect of the razor head **200** also includes another type of separation member **212**, **214**. The separation members **212**, **214** are positioned and operate in the same manner as the separation members **122a**, **122b** of the razor **100** described above. The separation members **212**, **214** further reduce the quantity of material used to separate the razor blades in the razor head **200** so water can more efficiently flow through the razor head **200** during cleaning of the razor head **200**. A frame **216** and the separation members **212**, **214** may each include a pair of stop members **220a-220f** to assist in retaining the razor blades **18a** in the razor head **200**. The profiled perimeters **18a'''** of razor blade **18a** may abut the stop members **220a-220f** to prevent the razor blades **18a** from moving side to side along the longest dimension of the razor head **200** and forward and back in the razor head **200**. Therefore, the razor blades are prevent from moving for-

wards and backwards within the razor head **200** and are prevent from moving left and right within the razor head **200**. Similar to the separation members **122a**, **122b** of the razor **100**, magnets **222a**, **222b** may be provided on the separation members **212**, **214** to assist in retaining the razor blades within the razor head **200**.

A summary of the disclosure is provided in the following clauses.

Clause a: A shaving razor, comprising a handle, a head pivotally attached to the handle, the head including a frame and a cover pivotally attached to the frame, and at least one razor blade separation member provided between the frame and the cover of the head.

Clause b: The shaving razor of clause a, wherein the at least one separation member is movable relative to at least one of the frame and the cover of the head.

Clause c: The shaving razor of clause a or b, further comprising a releasable locking mechanism provided on the head and configured to hold the frame and cover together.

Clause d: The shaving razor of any of clause c, the releasable locking mechanism comprising a thumbscrew, a shaft extending from the thumbscrew and through the frame, the separation member, and the cover, and a threaded portion provided on an end of the shaft opposite the thumbscrew, wherein the threaded portion is removably threaded into the cover.

Clause e: The shaving razor of clause c, the releasable locking mechanism comprising a release lever, a retaining member extending from the release lever, and at least one spring member positioned on the retaining member, wherein the at least one spring member creates a biasing force on the locking mechanism to keep the locking mechanism in a locked position until the release lever is actuated.

Clause f: The shaving razor of clause c, the releasable locking mechanism comprising at least one magnet positioned on the cover, and at least one magnet positioned on the frame, where the at least one magnet on the cover is configured to create a magnetic connection between the at least one magnet on the frame to hold the cover and the frame together in a locked position.

Clause g: The shaving razor of any of clauses a-f, further comprising at least one razor blade provided in the head.

Clause h: The shaving razor of clause g, wherein the at least one razor blade comprises at least two razor blades positioned on opposing sides of the separation member.

Clause i: The shaving razor of clause h, wherein a stepped locking abutment extends from the frame and is configured to position the at least two razor blades in a stepped arrangement within the head.

Clause j: The shaving razor of clause h or i, wherein the razor blades are removably provided within the head.

Clause k: The shaving razor of any of clauses a-j, wherein a dimension of a first gap defined between the at least one separation member and the frame is different from a dimension of a second gap defined between the at least one separation member and the cover.

Clause l: The shaving razor of any of clauses a-k, wherein at least one magnet is positioned on the at least one separation member.

Clause m: The shaving razor of any of clauses a-l, wherein the at least one separation member includes at least one stop member that extends therefrom, and the frame includes at least one stop member that extends therefrom, the stop members being configured to retain a razor blade on each of the at least one separation member and the frame.

Clause n: The shaving razor of clause m, wherein the at least one stop member extending from the frame is posi-

tioned closer to a shaving edge of the shaving razor than the at least one stop member extending from the at least one separation member.

Clause o: The shaving razor of any of clauses a-n, wherein the frame includes a shaving edge comprising an extension member, the extension member defining a recessed portion that lifts a user's hair from his/her skin during shaving.

Clause p: A shaving razor, comprising a handle and a head pivotally attached to the handle, wherein the head is configured to receive at least two independently replaceable razor blades.

Clause q: The shaving razor of clause p, wherein each replaceable razor blade comprises a blade body that tapers to at least one razor edge.

Clause r: The shaving razor of clause p or q, further comprising at least one separation member provided between a frame and a cover of the head, such that the replaceable razor blades are receivable on opposing sides of the separation member.

Clause s: The shaving razor of clause r, wherein the at least one separation member includes at least one stop member that extends therefrom, and the frame includes at least one stop member that extends therefrom, wherein the stop members are configured to retain a razor blade on each of the at least one separation member and the frame, and wherein the at least one stop member extending from the frame is positioned closer to a shaving edge of the shaving razor than the at least one stop member extending from the at least one separation member.

Clause t: The shaving razor of clause r or s, wherein a dimension of a first gap defined between the at least one separation member and the frame is different from a dimension of a second gap defined between the at least one separation member and the cover.

While aspects of a razor are shown in the accompanying figures and described hereinabove in detail, other aspects will be apparent to, and readily made by, those skilled in the art without departing from the scope and spirit of the invention. Accordingly, the foregoing description is intended to be illustrative rather than restrictive. The invention described hereinabove is defined by the appended claims and all changes to the invention that fall within the meaning and the range of equivalency of the claims are to be embraced within their scope.

The invention claimed is:

1. A shaving razor, comprising:

a handle;

a head pivotally attached to the handle, the head including a frame and a cover pivotally attached to the frame; and

at least one razor blade separation member provided between the frame and the cover of the head, wherein the at least one razor blade separation member is pivotally attached to the frame, wherein, when the cover is rotated into an open position such that a portion of the cover is moved away from the frame, the at least one separation member is independently movable relative to the frame and the cover of the head after the cover has been opened,

wherein the at least one separation member includes at least one stop member that extends therefrom, and the

frame includes at least one stop member that extends therefrom, the stop members being configured to retain a razor blade on each of the at least one separation member and the frame, and

wherein a stepped locking abutment extends from the frame and is configured to position at least two razor blades in a stepped arrangement within the head.

2. The razor as claimed in claim 1, further comprising a releasable locking mechanism provided on the head and configured to hold the frame and cover together.

3. The razor as claimed in claim 2, the releasable locking mechanism comprising:

a thumbscrew;

a shaft extending from the thumbscrew and through the frame, the separation member, and the cover; and

a threaded portion provided on an end of the shaft opposite the thumbscrew, wherein the threaded portion is removably threaded into the cover.

4. The razor as claimed in claim 2, the releasable locking mechanism comprising:

a release lever;

a retaining member extending from the release lever; and at least one spring member positioned on the retaining member;

wherein the at least one spring member creates a biasing force on the locking mechanism to keep the locking mechanism in a locked position until the release lever is actuated.

5. The razor as claimed in claim 2, the releasable locking mechanism comprising:

at least one magnet positioned on the cover; and

at least one magnet positioned on the frame,

wherein the at least one magnet on the cover is configured to create a magnetic connection between the at least one magnet on the frame to hold the cover and the frame together in a locked position.

6. The razor as claimed in claim 1, further comprising at least one razor blade provided in the head.

7. The razor as claimed in claim 6, wherein the at least one razor blade comprises at least two razor blades positioned on opposing sides of the separation member.

8. The razor as claimed in claim 7, wherein the razor blades are removably provided within the head.

9. The razor as claimed in claim 1, wherein a dimension of a first gap defined between the at least one separation member and the frame is different from a dimension of a second gap defined between the at least one separation member and the cover.

10. The razor as claimed in claim 1, wherein at least one magnet is positioned on the at least one separation member.

11. The razor as claimed in claim 1, wherein the at least one stop member extending from the frame is positioned closer to a shaving edge of the head of the razor than the at least one stop member extending from the at least one separation member.

12. The razor as claimed in claim 1, wherein the frame includes a shaving edge comprising an extension member, the extension member defining a recessed portion that lifts a user's hair from his/her skin during shaving.

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

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DATED : February 2, 2021
INVENTOR(S) : Adam J. Hahn et al.

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

Column 17, Line 46, Claim 1, after "A" delete "shaving"

Signed and Sealed this
Twenty-ninth Day of June, 2021



Drew Hirshfeld
*Performing the Functions and Duties of the
Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office*